

INDEX

Non-alphabetical

- ??
 - in regular expressions, 109
- ..
 - in pathnames, 586
- ..., 1899
 - ellipsis literal, 27, 83
 - in doctests, 1476
 - interpreter prompt, 1473, 1671
 - placeholder, 142, 254, 259
- { } (curly brackets)
 - in regular expressions, 109
 - in string formatting, 99
- . (dot)
 - in glob-style wildcards, 403
 - in pathnames, 586
 - in printf-style formatting, 52, 66
 - in regular expressions, 109
 - in string formatting, 99
 - in Tkinter, 1406
- ! (exclamation)
 - in a command interpreter, 1393
 - in curses module, 706
 - in glob-style wildcards, 403, 404
 - in string formatting, 99
 - in struct format strings, 152
- (minus)
 - binary operator, 31
 - in doctests, 1478
 - in glob-style wildcards, 403, 404
 - in printf-style formatting, 52, 66
 - in regular expressions, 109
 - in string formatting, 101
 - unary operator, 31
- ! (pdb command), 1613
- ? (question mark)
 - in a command interpreter, 1393
 - in argparse module, 623
 - in AST grammar, 1785
 - in glob-style wildcards, 403, 404
 - in regular expressions, 109
 - in SQL statements, 447
- in struct format strings, 154
- replacement character, 160
- # (hash)
 - comment, 1742
 - in doctests, 1478
 - in printf-style formatting, 52, 66
 - in regular expressions, 115
 - in string formatting, 101
- \$ (dollar)
 - environment variables expansion, 386
 - in regular expressions, 109
 - in template strings, 106
 - interpolation in configuration files, 504
- % (percent)
 - datetime format, 203, 604, 606
 - environment variables expansion (Windows), 386, 1836
 - interpolation in configuration files, 504
 - operator, 31
 - printf-style formatting, 51, 66
- & (ampersand)
 - operator, 32
- (?)
 - in regular expressions, 110
- (?!)
 - in regular expressions, 111
- (?#)
 - in regular expressions, 111
- () (parentheses)
 - in printf-style formatting, 52, 66
 - in regular expressions, 110
- (?:)
 - in regular expressions, 110
- (?<!)
 - in regular expressions, 112
- (?<=)
 - in regular expressions, 111
- (?P<)
 - in regular expressions, 111
- (?P=)
 - in regular expressions, 111
- *?
 - in regular expressions, 111

in regular expressions, 109
* (asterisk)
 in argparse module, 623
 in AST grammar, 1785
 in glob-style wildcards, 403, 404
 in printf-style formatting, 52, 66
 in regular expressions, 109
operator, 31
**
 in glob-style wildcards, 403
 operator, 31
+?
 in regular expressions, 109
+ (plus)
 binary operator, 31
 in argparse module, 624
 in doctests, 1478
 in printf-style formatting, 52, 66
 in regular expressions, 109
 in string formatting, 101
 unary operator, 31
, (comma)
 in string formatting, 101
/ (slash)
 in pathnames, 586
 operator, 31
//
 operator, 31
2to3, 1899
: (colon)
 in SQL statements, 447
 in string formatting, 99
 path separator (POSIX), 586
; (semicolon), 586
< (less)
 in string formatting, 101
 in struct format strings, 152
 operator, 30
<<
 operator, 32
<=
 operator, 30
<BLANKLINE>, 1476
!=
 operator, 30
=(equals)
 in string formatting, 101
 in struct format strings, 152
==
 operator, 30
> (greater)
 in string formatting, 101
 in struct format strings, 152
 operator, 30
>=
 operator, 30
>>
 operator, 32
>>>
 interpreter prompt, 1473, 1671
@ (at)
 in struct format strings, 152
[] (square brackets)
 in glob-style wildcards, 403, 404
 in regular expressions, 109
 in string formatting, 99
\ (backslash)
 escape sequence, 160
 in pathnames (Windows), 586
 in regular expressions, 109, 110, 112
\\
 in regular expressions, 113
\A
 in regular expressions, 112
\a
 in regular expressions, 113
\B
 in regular expressions, 112
\b
 in regular expressions, 112, 113
\D
 in regular expressions, 112
\d
 in regular expressions, 112
\f
 in regular expressions, 113
\g
 in regular expressions, 117
\N
 escape sequence, 160
 in regular expressions, 113
\n
 in regular expressions, 113
\r
 in regular expressions, 113
\S
 in regular expressions, 113
\s
 in regular expressions, 112
\t
 in regular expressions, 113
>>>, 1899
\U
 escape sequence, 160
 in regular expressions, 113
\u
 escape sequence, 160
 in regular expressions, 113

\v
 in regular expressions, 113

\W
 in regular expressions, 113

\w
 in regular expressions, 113

\x
 escape sequence, 160
 in regular expressions, 113

\Z
 in regular expressions, 113

[^](caret)
 in curses module, 706
 in regular expressions, 109, 110
 in string formatting, 101
 marker, 1475, 1716
 operator, 32

_ (underscore)
 gettext, 1342
 in string formatting, 101

__abs__() (in module operator), 360

__add__() (in module operator), 360

__and__() (in module operator), 360

__bases__ (class attribute), 84

__breakpointhook__ (in module sys), 1661

__bytes__() (email.message.EmailMessage method), 1015

__bytes__() (email.message.Message method), 1054

__call__() (email.headerregistry.HeaderRegistry method), 1041

__call__() (weakref.finalize method), 244

__callback__ (weakref.ref attribute), 242

__cause__ (traceback.TracebackException attribute), 1717

__ceil__() (fractions.Fraction method), 323

__class__ (instance attribute), 84

__class__ (unittest.mock.Mock attribute), 1531

__code__ (function object attribute), 83

__concat__() (in module operator), 361

__contains__() (email.message.EmailMessage method), 1016

__contains__() (email.message.Message method), 1055

__contains__() (in module operator), 362

__contains__() (mailbox.Mailbox method), 1085

__context__ (traceback.TracebackException attribute), 1717

__copy__() (copy protocol), 253

__debug__ (built-in variable), 27

__deepcopy__() (copy protocol), 253

__del__() (io.IOBase method), 592

__delitem__() (email.message.EmailMessage method), 1017

__delitem__() (email.message.Message method), 1056

__delitem__() (in module operator), 362

__delitem__() (mailbox.Mailbox method), 1084

__delitem__() (mailbox.MH method), 1089

__dict__ (object attribute), 84

__dir__() (unittest.mock.Mock method), 1528

__displayhook__ (in module sys), 1661

__doc__ (types.ModuleType attribute), 250

__enter__() (contextmanager method), 81

__enter__() (winreg.PyHKEY method), 1842

__eq__() (email.charset.Charset method), 1067

__eq__() (email.header.Header method), 1065

__eq__() (in module operator), 360

__eq__() (instance method), 30

__eq__() (memoryview method), 69

__excepthook__ (in module sys), 1661

__exit__() (contextmanager method), 81

__exit__() (winreg.PyHKEY method), 1842

__floor__() (fractions.Fraction method), 322

__floordiv__() (in module operator), 360

__format__, 12

__format__() (datetime.date method), 182

__format__() (datetime.datetime method), 190

__format__() (datetime.time method), 194

__fspath__() (os.PathLike method), 543

__future__, 1903

__future__ (module), 1722

__ge__() (in module operator), 360

__ge__() (instance method), 30

__getitem__() (email.headerregistry.HeaderRegistry method), 1041

__getitem__() (email.message.EmailMessage method), 1016

__getitem__() (email.message.Message method), 1056

__getitem__() (in module operator), 362

__getitem__() (mailbox.Mailbox method), 1084

__getitem__() (re.Match method), 121

__getnewargs__ () (object method), 421

__getnewargs_ex__ () (object method), 421

__getstate__ () (copy protocol), 425

__getstate__ () (object method), 421

__gt__() (in module operator), 360

__gt__() (instance method), 30

__iadd__() (in module operator), 365

__iand__() (in module operator), 365

__iconcat__() (in module operator), 365

__ifloordiv__() (in module operator), 365

__ilshift__() (in module operator), 365

__imatmul__() (in module operator), 365

__imod__() (in module operator), 365

__import__() (built-in function), 25

__import__() (in module importlib), 1760

__imul__() (in module operator), 365
__index__() (in module operator), 360
__init__() (difflib.HtmlDiff method), 129
__init__() (logging.Handler method), 650
__interactivehook__ (in module sys), 1668
__inv__() (in module operator), 361
__invert__() (in module operator), 361
__ior__() (in module operator), 366
__ipow__() (in module operator), 366
__irshift__() (in module operator), 366
__isub__() (in module operator), 366
__iter__() (container method), 36
__iter__() (iterator method), 37
__iter__() (mailbox.Mailbox method), 1084
__iter__() (unittest.TestSuite method), 1512
__itruediv__() (in module operator), 366
__ixor__() (in module operator), 366
__le__() (in module operator), 360
__le__() (instance method), 30
__len__() (email.message.EmailMessage method), 1016
__len__() (email.message.Message method), 1055
__len__() (mailbox.Mailbox method), 1085
__loader__ (types.ModuleType attribute), 250
__lshift__() (in module operator), 361
__lt__() (in module operator), 360
__lt__() (instance method), 30
__main__
 module, 1757, 1758
__main__(module), 1681
__matmul__() (in module operator), 361
__missing__(), 78
__missing__() (collections.defaultdict method), 220
__mod__() (in module operator), 361
__mro__ (class attribute), 84
__mul__() (in module operator), 361
__name__ (definition attribute), 84
__name__ (types.ModuleType attribute), 250
__ne__() (email.charset.Charset method), 1067
__ne__() (email.header.Header method), 1065
__ne__() (in module operator), 360
__ne__() (instance method), 30
__neg__() (in module operator), 361
__next__() (csv.csvreader method), 497
__next__() (iterator method), 37
__not__() (in module operator), 360
__or__() (in module operator), 361
__package__ (types.ModuleType attribute), 250
__pos__() (in module operator), 361
__pow__() (in module operator), 361
__qualname__ (definition attribute), 84
__reduce__() (object method), 422
__reduce_ex__() (object method), 422
__repr__() (multiprocessing.managers.BaseProxy method), 790
__repr__() (netrc.netrc method), 518
__round__() (fractions.Fraction method), 323
__rshift__() (in module operator), 361
__setitem__() (email.message.EmailMessage method), 1016
__setitem__() (email.message.Message method), 1056
__setitem__() (in module operator), 362
__setitem__() (mailbox.Mailbox method), 1084
__setitem__() (mailbox.Maildir method), 1087
__setstate__() (copy protocol), 425
__setstate__() (object method), 421
__slots__, 1909
__stderr__ (in module sys), 1675
__stdin__ (in module sys), 1675
__stdout__ (in module sys), 1675
__str__() (datetime.date method), 181
__str__() (datetime.datetime method), 189
__str__() (datetime.time method), 194
__str__() (email.charset.Charset method), 1067
__str__() (email.header.Header method), 1065
__str__() (email.headerregistry.Address method), 1042
__str__() (email.headerregistry.Group method), 1042
__str__() (email.message.EmailMessage method), 1015
__str__() (email.message.Message method), 1053
__str__() (multiprocessing.managers.BaseProxy method), 790
__sub__() (in module operator), 361
__subclasses__() (class method), 84
__subclasshook__() (abc.ABCMeta method), 1710
__suppress_context__
 traceback.TracebackException attribute), 1717
__truediv__() (in module operator), 361
__xor__() (in module operator), 361
anonymous (ctypes.Structure attribute), 749
_asdict() (collections.somenamedtuple method), 222
_b_base_ (ctypes._CData attribute), 745
_b_needsfree_ (ctypes._CData attribute), 745
_callmethod()
 (multiprocessing.managers.BaseProxy method), 790
_CData (class in ctypes), 745
_clear_type_cache() (in module sys), 1660
_current_frames() (in module sys), 1660
_debugmallocstats() (in module sys), 1660
_dummy_thread (module), 838
_enablelegacywindowsfsencoding() (in module sys), 1674
_exit() (in module os), 576

`_fields` (`ast.AST` attribute), 1785
`_fields` (`collections.somenamedtuple` attribute), 223
`_fields_` (`ctypes.Structure` attribute), 748
`_fields_defaults` (`collections.somenamedtuple` attribute), 223
`_flush()` (`wsgiref.handlers.BaseHandler` method), 1190
`_FuncPtr` (class in `ctypes`), 739
`_get_child_mock()` (`unittest.mock.Mock` method), 1528
`_getframe()` (in module `sys`), 1666
`_getvalue()` (`multiprocessing.managers.BaseProxy` method), 790
`_handle` (`ctypes.PyDLL` attribute), 738
`_length_` (`ctypes.Array` attribute), 749
`_locale`
 module, 1349
`_make()` (`collections.somenamedtuple` class method), 222
`_makeResult()` (`unittest.TextTestRunner` method), 1517
`_name` (`ctypes.PyDLL` attribute), 738
`_objects` (`ctypes._CData` attribute), 745
`_pack_` (`ctypes.Structure` attribute), 749
`_parse()` (`gettext.NullTranslations` method), 1344
`_Pointer` (class in `ctypes`), 750
`_replace()` (`collections.somenamedtuple` method), 223
`_setroot()` (`xml.etree.ElementTree.ElementTree` method), 1130
`_SimpleCData` (class in `ctypes`), 745
`_structure()` (in module `email.iterators`), 1071
`_thread` (module), 836
`_type_` (`ctypes._Pointer` attribute), 750
`_type_` (`ctypes.Array` attribute), 750
`_write()` (`wsgiref.handlers.BaseHandler` method), 1189
`_xoptions` (in module `sys`), 1676
`|` (vertical bar)
 in regular expressions, 110
 operator, 32
`~` (tilde)
 home directory expansion, 386
 operator, 32

A

`A` (in module `re`), 114
`-a, --annotate`
 pickletools command line option, 1820
`a2b_base64()` (in module `binascii`), 1107
`a2b_hex()` (in module `binascii`), 1109
`a2b_hqx()` (in module `binascii`), 1108
`a2b_qp()` (in module `binascii`), 1107
`a2b_uu()` (in module `binascii`), 1107

`a85decode()` (in module `base64`), 1105
`a85encode()` (in module `base64`), 1105
`ABC` (class in `abc`), 1709
`abc` (module), 1709
`ABCMeta` (class in `abc`), 1709
`abiflags` (in module `sys`), 1659
`abort()` (`asyncio DatagramTransport` method), 902
`abort()` (`asyncio WriteTransport` method), 901
`abort()` (`ftplib.FTP` method), 1231
`abort()` (in module `os`), 575
`abort()` (`threading.Barrier` method), 762
`above()` (`curses.panel.Panel` method), 707
`ABOVE_NORMAL_PRIORITY_CLASS` (in module `subprocess`), 824
`abs()` (built-in function), 5
`abs()` (`decimal.Context` method), 308
`abs()` (in module `operator`), 360
`abspath()` (in module `os.path`), 385
`abstract base class`, 1899
`AbstractAsyncContextManager` (class in `contextlib`), 1696
`AbstractBasicAuthHandler` (class in `urllib.request`), 1196
`AbstractChildWatcher` (class in `asyncio`), 914
`abstractclassmethod()` (in module `abc`), 1712
`AbstractContextManager` (class in `contextlib`), 1696
`AbstractDigestAuthHandler` (class in `urllib.request`), 1197
`AbstractEventLoop` (class in `asyncio`), 892
`AbstractEventLoopPolicy` (class in `asyncio`), 912
`AbstractFormatter` (class in `formatter`), 1823
`abstractmethod()` (in module `abc`), 1711
`abstractproperty()` (in module `abc`), 1713
`AbstractSet` (class in `typing`), 1459
`abstractstaticmethod()` (in module `abc`), 1713
`AbstractWriter` (class in `formatter`), 1824
`accept()` (`asyncore.dispatcher` method), 998
`accept()` (`multiprocessing.connection.Listener` method), 794
`accept()` (`socket.socket` method), 938
`access()` (in module `os`), 557
`accumulate()` (in module `itertools`), 338
`aclose()` (`contextlib.AsyncExitStack` method), 1703
`acos()` (in module `cmath`), 291
`acos()` (in module `math`), 287
`acosh()` (in module `cmath`), 291
`acosh()` (in module `math`), 288
`acquire()` (`_thread.lock` method), 837
`acquire()` (`asyncio.Condition` method), 865
`acquire()` (`asyncio.Lock` method), 863
`acquire()` (`asyncio.Semaphore` method), 866
`acquire()` (`logging.Handler` method), 650
`acquire()` (`multiprocessing.Lock` method), 779
`acquire()` (`multiprocessing.RLock` method), 780

acquire() (threading.Condition method), 758
acquire() (threading.Lock method), 755
acquire() (threading.RLock method), 756
acquire() (threading.Semaphore method), 759
acquire_lock() (in module imp), 1893
Action (class in argparse), 630
action (optparse.Option attribute), 1876
ACTIONS (optparse.Option attribute), 1889
active_children() (in module multiprocessing), 775
active_count() (in module threading), 751
add() (decimal.Context method), 308
add() (frozenset method), 76
add() (in module audioop), 1321
add() (in module operator), 360
add() (mailbox.Mailbox method), 1083
add() (mailbox.Maildir method), 1087
add() (msilib.RadioButtonGroup method), 1831
add() (pstats.Stats method), 1618
add() (tarfile.TarFile method), 486
add() (tkinter.ttk.Notebook method), 1422
add_alias() (in module email.charset), 1068
add_alternative() (email.message.EmailMessage method), 1021
add_argument() (argparse.ArgumentParser method), 620
add_argument_group() (argparse.ArgumentParser method), 638
add_attachment() (email.message.EmailMessage method), 1022
add_cgi_vars() (wsgiref.handlers.BaseHandler method), 1190
add_charset() (in module email.charset), 1067
add_child_handler() (asyncio.AbstractChildWatcher method), 914
add_codec() (in module email.charset), 1068
add_cookie_header() (http.cookiejar.CookieJar method), 1285
add_data() (in module msilib), 1828
add_done_callback() (asyncio.Future method), 896
add_done_callback() (asyncio.Task method), 855
add_done_callback() (concurrent.futures.Future method), 812
add_fallback() (gettext.NullTranslations method), 1344
add_file() (msilib.Directory method), 1830
add_flag() (mailbox.MaildirMessage method), 1092
add_flag() (mailbox.mboxMessage method), 1094
add_flag() (mailbox.MMDFMessage method), 1098
add_flow_data() (formatter.formatter method), 1822
add_folder() (mailbox.Maildir method), 1087
add_folder() (mailbox.MH method), 1088
add_get_handler() (email.contentmanager.ContentManager method), 1043
add_handler() (urllib.request.OpenerDirector method), 1199
add_header() (email.message.EmailMessage method), 1017
add_header() (email.message.Message method), 1056
add_header() (urllib.request.Request method), 1198
add_header() (wsgiref.headers.Headers method), 1186
add_history() (in module readline), 147
add_hor_rule() (formatter.formatter method), 1822
add_label() (mailbox.BabylMessage method), 1096
add_label_data() (formatter.formatter method), 1822
add_line_break() (formatter.formatter method), 1822
add_literal_data() (formatter.formatter method), 1822
add_mutually_exclusive_group() (argparse.ArgumentParser method), 639
add_option() (optparse.OptionParser method), 1875
add_parent() (urllib.request.BaseHandler method), 1200
add_password() (urllib.request.HTTPPasswordMgr method), 1202
add_password() (url lib.request.HTTPPasswordMgrWithPriorAuth method), 1203
add_reader() (asyncio.loop method), 884
add_related() (email.message.EmailMessage method), 1021
add_section() (configparser.ConfigParser method), 513
add_section() (configparser.RawConfigParser method), 516
add_sequence() (mailbox.MHMessage method), 1095
add_set_handler() (email.contentmanager.ContentManager method), 1043
add_signal_handler() (asyncio.loop method), 886
add_stream() (in module msilib), 1828
add_subparsers() (argparse.ArgumentParser method), 634
add_tables() (in module msilib), 1828
add_type() (in module mimetypes), 1101
add_unredirected_header() (urllib.request.Request method), 1199
add_writer() (asyncio.loop method), 884
addch() (curses.window method), 692
addCleanup() (unittest.TestCase method), 1510
addcomponent() (turtle.Shape method), 1386
addError() (unittest.TestResult method), 1516
addExpectedFailure() (unittest.TestResult method), 1516

addFailure() (unittest.TestResult method), 1516
 addfile() (tarfile.TarFile method), 486
 addFilter() (logging.Handler method), 650
 addFilter() (logging.Logger method), 648
 addHandler() (logging.Logger method), 649
 addLevelName() (in module logging), 658
 addnstr() (curses.window method), 692
 AddPackagePath() (in module modulefinder), 1756
 addr (smtpd.SMTPChannel attribute), 1259
 addr_spec (email.headerregistry.Address attribute),
 1042
 Address (class in email.headerregistry), 1041
 address (email.headerregistry.SingleAddressHeader
 attribute), 1040
 address (multiprocessing.connection.Listener
 attribute), 794
 address (multiprocessing.managers.BaseManager
 attribute), 785
 address_exclude() (ipaddress.IPv4Network method),
 1313
 address_exclude() (ipaddress.IPv6Network method),
 1315
 address_family (socketserver.BaseServer attribute),
 1269
 address_string() (http.server.BaseHTTPRequestHandle
 method), 1278
 addresses (email.headerregistry.AddressHeader
 attribute), 1040
 addresses (email.headerregistry.Group attribute),
 1042
 AddressHeader (class in email.headerregistry), 1039
 addressof() (in module ctypes), 742
 AddressValueError, 1319
 addshape() (in module turtle), 1384
 addsitedir() (in module site), 1744
 addSkip() (unittest.TestResult method), 1516
 addstr() (curses.window method), 692
 addSubTest() (unittest.TestResult method), 1517
 addSuccess() (unittest.TestResult method), 1516
 addTest() (unittest.TestSuite method), 1512
 addTests() (unittest.TestSuite method), 1512
 addTypeEqualityFunc() (unittest.TestCase method),
 1508
 addUnexpectedSuccess() (unittest.TestResult
 method), 1516
 adjusted() (decimal.Decimal method), 299
 adler32() (in module zlib), 459
 ADPCM, Intel/DVI, 1321
 adpcm2lin() (in module audioop), 1321
 AF_ALG (in module socket), 932
 AF_CAN (in module socket), 931
 AF_INET (in module socket), 930
 AF_INET6 (in module socket), 930
 AF_LINK (in module socket), 932
 AF_PACKET (in module socket), 932
 AF_RDS (in module socket), 932
 AF_UNIX (in module socket), 930
 AF_VSOCK (in module socket), 932
 aifc (module), 1324
 aifc() (aifc.aifc method), 1326
 AIFF, 1324, 1332
 aiff() (aifc.aifc method), 1325
 AIFF-C, 1324, 1332
 alarm() (in module signal), 1004
 A-LAW, 1326, 1334
 a-LAW, 1321
 alaw2lin() (in module audioop), 1321
 ALERT_DESCRIPTION_HANDSHAKE_FAILURE
 (in module ssl), 962
 ALERT_DESCRIPTION_INTERNAL_ERROR
 (in module ssl), 962
 AlertDescription (class in ssl), 962
 algorithms_available (in module hashlib), 526
 algorithms_guaranteed (in module hashlib), 526
 alias (pdb command), 1613
 alignment() (in module ctypes), 742
 alive (weakref.finalize attribute), 244
 all() (built-in function), 5
 all_errors (in module ftplib), 1230
 all_features (in module xml.sax.handler), 1154
 all_frames (tracemalloc.Filter attribute), 1636
 all_properties (in module xml.sax.handler), 1154
 all_suffixes() (in module importlib.machinery), 1770
 all_tasks() (asyncio.Task class method), 855
 all_tasks() (in module asyncio), 853
 allocate_lock() (in module _thread), 836
 allow_reuse_address (socketserver.BaseServer
 attribute), 1269
 allowed_domains() (http.cookiejar.DefaultCookiePolicy
 method), 1289
 alt() (in module curses.ascii), 706
 ALT_DIGITS (in module locale), 1353
 altsep (in module os), 586
 altzone (in module time), 609
 ALWAYS_TYPED_ACTIONS (optparse.Option attribute), 1889
 AMPER (in module token), 1794
 AMPEREQUAL (in module token), 1794
 and
 operator, 29
 and_() (in module operator), 360
 annotation, 1899
 annotation (inspect.Parameter attribute), 1733
 answer_challenge() (in module multiprocessing
 connection), 793
 anticipate_failure() (in module test.support), 1593
 Any (in module typing), 1465
 ANY (in module unittest.mock), 1552

any() (built-in function), 5
AnyStr (in module typing), 1466
api_version (in module sys), 1676
apop() (poplib.POP3 method), 1235
append() (array.array method), 239
append() (collections.deque method), 216
append() (email.header.Header method), 1064
append() (imaplib.IMAP4 method), 1238
append() (msilib.CAB method), 1830
append() (pipes.Template method), 1856
append() (sequence method), 39
append() (xml.etree.ElementTree.Element method), 1128
append_history_file() (in module readline), 147
appendChild() (xml.dom.Node method), 1137
appendleft() (collections.deque method), 216
application_uri() (in module wsgiref.util), 1184
apply (2to3 fixer), 1580
apply() (multiprocessing.pool.Pool method), 791
apply_async() (multiprocessing.pool.Pool method), 791
apply_defaults() (inspect.BoundArguments method), 1735
architecture() (in module platform), 708
archive (zipimport.zipimporter attribute), 1752
aRepr (in module reprlib), 259
argparse (module), 610
args (BaseException attribute), 88
args (functools.partial attribute), 359
args (inspect.BoundArguments attribute), 1735
args (pdb command), 1612
args (subprocess.CompletedProcess attribute), 815
args (subprocess.Popen attribute), 822
args_from_interpreter_flags() (in module test.support), 1591
argtypes (ctypes._FuncPtr attribute), 739
argument, 1899
ArgumentDefaultsHelpFormatter (class in argparse), 615
ArgumentError, 740
ArgumentParser (class in argparse), 612
arguments (inspect.BoundArguments attribute), 1734
argv (in module sys), 1659
arithmetic, 31
ArithError, 88
array
 module, 53
array (class in array), 238
Array (class in ctypes), 749
array (module), 238
Array() (in module multiprocessing), 781
Array() (in module multiprocessing.sharedctypes), 782
Array() (multiprocessing.managers.SyncManager method), 786
arrays, 238
arraysize (sqlite3.Cursor attribute), 450
article() (nntplib.NNTP method), 1248
as_bytes() (email.message.EmailMessage method), 1015
as_bytes() (email.message.Message method), 1053
as_completed() (in module asyncio), 852
as_completed() (in module concurrent.futures), 813
as_integer_ratio() (decimal.Decimal method), 299
as_integer_ratio() (float method), 34
AS_IS (in module formatter), 1821
as_posix() (pathlib.PurePath method), 374
as_string() (email.message.EmailMessage method), 1015
as_string() (email.message.Message method), 1053
as_tuple() (decimal.Decimal method), 299
as_uri() (pathlib.PurePath method), 375
ASCII (in module re), 114
ascii() (built-in function), 5
ascii() (in module curses.ascii), 706
ascii_letters (in module string), 97
ascii_lowercase (in module string), 97
ascii_uppercase (in module string), 97
asctime() (in module time), 601
asdict() (in module dataclasses), 1691
asin() (in module cmath), 291
asin() (in module math), 287
asinh() (in module cmath), 291
asinh() (in module math), 288
assert
 statement, 88
assert_any_call() (unittest.mock.Mock method), 1526
assert_called() (unittest.mock.Mock method), 1525
assert_called_once() (unittest.mock.Mock method), 1525
assert_called_once_with() (unittest.mock.Mock method), 1525
assert_called_with() (unittest.mock.Mock method), 1525
assert_has_calls() (unittest.mock.Mock method), 1526
assert_line_data() (formatter.formatter method), 1823
assert_not_called() (unittest.mock.Mock method), 1526
assert_python_failure() (in module test.support.script_helper), 1599
assert_python_ok() (in module test.support.script_helper), 1599
assertAlmostEqual() (unittest.TestCase method), 1507

assertCountEqual() (unittest.TestCase method), 1508
assertDictEqual() (unittest.TestCase method), 1509
assertEqual() (unittest.TestCase method), 1504
assertFalse() (unittest.TestCase method), 1504
assertGreater() (unittest.TestCase method), 1508
assertGreaterEqual() (unittest.TestCase method), 1508
assertIn() (unittest.TestCase method), 1504
AssertionError, 88
assertIs() (unittest.TestCase method), 1504
assertIsInstance() (unittest.TestCase method), 1505
assertIsNone() (unittest.TestCase method), 1504
assert IsNot() (unittest.TestCase method), 1504
assert IsNotNone() (unittest.TestCase method), 1504
assertLess() (unittest.TestCase method), 1508
assertLessEqual() (unittest.TestCase method), 1508
assertListEqual() (unittest.TestCase method), 1509
assertLogs() (unittest.TestCase method), 1507
assertMultiLineEqual() (unittest.TestCase method), 1509
assertNotAlmostEqual() (unittest.TestCase method), 1507
assertNotEqual() (unittest.TestCase method), 1504
assertNotIn() (unittest.TestCase method), 1504
assertNotIsInstance() (unittest.TestCase method), 1505
assertNotRegex() (unittest.TestCase method), 1508
assertRaises() (unittest.TestCase method), 1505
assertRaisesRegex() (unittest.TestCase method), 1505
assertRegex() (unittest.TestCase method), 1508
asserts (2to3 fixer), 1580
assertSequenceEqual() (unittest.TestCase method), 1509
assertSetEqual() (unittest.TestCase method), 1509
assertTrue() (unittest.TestCase method), 1504
assertTupleEqual() (unittest.TestCase method), 1509
assertWarns() (unittest.TestCase method), 1506
assertWarnsRegex() (unittest.TestCase method), 1506
assignment
 slice, 39
 subscript, 39
AST (class in ast), 1785
ast (module), 1785
astimezone() (datetime.datetime method), 187
astuple() (in module dataclasses), 1691
async_chat (class in asynchat), 1000
async_chat.ac_in_buffer_size (in module asynchat), 1000
async_chat.ac_out_buffer_size (in module asynchat), 1000
AsyncContextManager (class in typing), 1461
asynccontextmanager() (in module contextlib), 1697
AsyncExitStack (class in contextlib), 1702
AsyncGenerator (class in collections.abc), 230
AsyncGenerator (class in typing), 1462
AsyncGeneratorType (in module types), 249
asynchat (module), 1000
asynchronous context manager, 1900
asynchronous generator, 1900
asynchronous generator iterator, 1900
asynchronous iterable, 1900
asynchronous iterator, 1900
asyncio (module), 843
asyncio.subprocess.DEVNULL (in module asyncio), 868
asyncio.subprocess.PIPE (in module asyncio), 868
asyncio.subprocess.Process (class in asyncio), 868
asyncio.subprocess.STDOUT (in module asyncio), 868
AsyncIterable (class in collections.abc), 230
AsyncIterable (class in typing), 1461
AsyncIterator (class in collections.abc), 230
AsyncIterator (class in typing), 1461
asyncore (module), 995
AsyncResult (class in multiprocessing.pool), 792
AT (in module token), 1794
at_eof() (asyncio.StreamReader method), 858
atan() (in module cmath), 291
atan() (in module math), 287
atan2() (in module math), 287
atanh() (in module cmath), 291
atanh() (in module math), 288
ATEQUAL (in module token), 1794
atexit (module), 1714
atexit (weakref.finalize attribute), 244
atof() (in module locale), 1354
atoi() (in module locale), 1354
attach() (email.message.Message method), 1054
attach_loop() (asyncio.AbstractChildWatcher method), 914
attach_mock() (unittest.mock.Mock method), 1527
AttlistDeclHandler() (xml.parsers.expat.xmlparser method), 1166
attrgetter() (in module operator), 362
attrib (xml.etree.ElementTree.Element attribute), 1128
attribute, 1900
AttributeError, 88
attributes (xml.dom.Node attribute), 1136
AttributesImpl (class in xml.sax.xmlreader), 1159
AttributesNSImpl (class in xml.sax.xmlreader), 1159
attroff() (curses.window method), 692
attron() (curses.window method), 693
attrset() (curses.window method), 693
Audio Interchange File Format, 1324, 1332

AUDIO_FILE_ENCODING_ADPCM_G721 (in module sunau), 1327
AUDIO_FILE_ENCODING_ADPCM_G722 (in module sunau), 1327
AUDIO_FILE_ENCODING_ADPCM_G723_3 (in module sunau), 1327
AUDIO_FILE_ENCODING_ADPCM_G723_5 (in module sunau), 1327
AUDIO_FILE_ENCODING_ALAW_8 (in module sunau), 1327
AUDIO_FILE_ENCODING_DOUBLE (in module sunau), 1327
AUDIO_FILE_ENCODING_FLOAT (in module sunau), 1327
AUDIO_FILE_ENCODING_LINEAR_8 (in module sunau), 1327
AUDIO_FILE_ENCODING_LINEAR_16 (in module sunau), 1327
AUDIO_FILE_ENCODING_LINEAR_24 (in module sunau), 1327
AUDIO_FILE_ENCODING_LINEAR_32 (in module sunau), 1327
AUDIO_FILE_ENCODING_MULAW_8 (in module sunau), 1327
AUDIO_FILE_MAGIC (in module sunau), 1327
AUDIODEV, 1335
audioop (module), 1321
auth() (ftplib.FTP_TLS method), 1233
auth() (smtplib.SMTP method), 1253
authenticate() (imaplib.IMAP4 method), 1238
AuthenticationError, 772
authenticators() (netrc.netrc method), 518
authkey (multiprocessing.Process attribute), 771
auto (class in enum), 261
autorange() (timeit.Timer method), 1624
avg() (in module audioop), 1321
avgpp() (in module audioop), 1321
avoids_symlink_attacks (shutil.rmtree attribute), 409
awaitable, 1900
Awaitable (class in collections.abc), 229
Awaitable (class in typing), 1461

B

-b
 compileall command line option, 1803
-b, --buffer
 unittest command line option, 1495
b2a_base64() (in module binascii), 1107
b2a_hex() (in module binascii), 1108
b2a_hqx() (in module binascii), 1108
b2a_qp() (in module binascii), 1108
b2a_uu() (in module binascii), 1107
b16decode() (in module base64), 1105
b16encode() (in module base64), 1105
b32decode() (in module base64), 1104
b32encode() (in module base64), 1104
b64decode() (in module base64), 1104
b64encode() (in module base64), 1104
b85decode() (in module base64), 1105
b85encode() (in module base64), 1105
Babyl (class in mailbox), 1089
BabylMessage (class in mailbox), 1096
back() (in module turtle), 1362
backslashreplace_errors() (in module codecs), 161
backup() (sqlite3.Connection method), 447
backward() (in module turtle), 1362
BadStatusLine, 1223
BadZipFile, 474
BadZipfile, 474
Balloon (class in tkinter.tix), 1434
Barrier (class in multiprocessing), 779
Barrier (class in threading), 762
Barrier() (multiprocessing.managers.SyncManager method), 785
base64
 encoding, 1103
 module, 1107
base64 (module), 1103
base_exec_prefix (in module sys), 1659
base_prefix (in module sys), 1659
BaseCGIHandler (class in wsgiref.handlers), 1189
BaseCookie (class in http.cookies), 1280
BaseException, 87
BaseHandler (class in urllib.request), 1196
BaseHandler (class in wsgiref.handlers), 1189
BaseHeader (class in email.headerregistry), 1038
BaseHTTPRequestHandler (class in http.server), 1275
BaseManager (class in multiprocessing.managers), 784
basename() (in module os.path), 385
BaseProtocol (class in asyncio), 903
BaseProxy (class in multiprocessing.managers), 789
BaseRequestHandler (class in socketserver), 1270
BaseRotatingHandler (class in logging.handlers), 674
BaseSelector (class in selectors), 993
BaseServer (class in socketserver), 1268
basestring (2to3 fixer), 1581
BaseTransport (class in asyncio), 899
basicConfig() (in module logging), 659
BasicContext (class in decimal), 305
BasicInterpolation (class in configparser), 504
BasicTestRunner (class in test.support), 1598
baudrate() (in module curses), 686
bbox() (tkinter.ttk.Treeview method), 1426
BDADDR_ANY (in module socket), 933
BDADDR_LOCAL (in module socket), 933

bdb
 module, 1608
Bdb (class in bdb), 1602
bdb (module), 1601
BdbQuit, 1601
BDFL, 1900
beep() (in module curses), 686
Beep() (in module winsound), 1842
BEFORE_ASYNC_WITH (opcode), 1812
begin_fill() (in module turtle), 1372
begin_poly() (in module turtle), 1377
below() (curses.panel.Panel method), 707
BELOW_NORMAL_PRIORITY_CLASS (in module subprocess), 824
Benchmarking, 1622
benchmarking, 601, 604, 607
betavariate() (in module random), 326
bgcolor() (in module turtle), 1379
bgpic() (in module turtle), 1379
bias() (in module audioop), 1321
bidirectional() (in module unicodedata), 143
bigaddrspacetest() (in module test.support), 1594
BigEndianStructure (class in ctypes), 748
bigmemtest() (in module test.support), 1594
bin() (built-in function), 6
binary
 data, packing, 151
 literals, 31
Binary (class in msilib), 1828
Binary (class in xmlrpc.client), 1296
binary file, 1900
binary mode, 18
binary semaphores, 836
BINARY_ADD (opcode), 1811
BINARY_AND (opcode), 1811
BINARY_FLOOR_DIVIDE (opcode), 1811
BINARY_LSHIFT (opcode), 1811
BINARY_MATRIX_MULTIPLY (opcode), 1811
BINARY_MODULO (opcode), 1811
BINARY_MULTIPLY (opcode), 1810
BINARY_OR (opcode), 1811
BINARY_POWER (opcode), 1810
BINARY_RSHIFT (opcode), 1811
BINARY_SUBSCR (opcode), 1811
BINARY_SUBTRACT (opcode), 1811
BINARY_TRUE_DIVIDE (opcode), 1811
BINARY_XOR (opcode), 1811
BinaryIO (class in typing), 1463
binascii (module), 1107
bind (widgets), 1412
bind() (asyncore.dispatcher method), 998
bind() (inspect.Signature method), 1732
bind() (socket.socket method), 939
bind_partial() (inspect.Signature method), 1732
bind_port() (in module test.support), 1595
bind_textdomain_codeset() (in module gettext), 1341
bind_unix_socket() (in module test.support), 1595
bindtextdomain() (in module gettext), 1341
bindtextdomain() (in module locale), 1356
binhex
 module, 1107
binhex (module), 1106
binhex() (in module binhex), 1106
bisect (module), 235
bisect() (in module bisect), 236
bisect_left() (in module bisect), 236
bisect_right() (in module bisect), 236
bit_length() (int method), 32
bitmap() (msilib.Dialog method), 1832
bitwise
 operations, 32
bk() (in module turtle), 1362
bkgd() (curses.window method), 693
bkgdset() (curses.window method), 693
blake2b() (in module hashlib), 528
blake2b, blake2s, 528
blake2b.MAX_DIGEST_SIZE (in module hashlib), 529
blake2b.MAX_KEY_SIZE (in module hashlib), 529
blake2b.PERSON_SIZE (in module hashlib), 529
blake2b.SALT_SIZE (in module hashlib), 529
blake2s() (in module hashlib), 528
blake2s.MAX_DIGEST_SIZE (in module hashlib), 529
blake2s.MAX_KEY_SIZE (in module hashlib), 529
blake2s.PERSON_SIZE (in module hashlib), 529
blake2s.SALT_SIZE (in module hashlib), 529
block_size (hmac.HMAC attribute), 536
blocked_domains() (http.cookiejar.DefaultCookiePolicy method), 1289
BlockingIOError, 92, 589
blocksize (http.client.HTTPConnection attribute), 1225
body() (nntplib.NNTP method), 1248
body_encode() (email.charset.Charset method), 1067
body_encoding (email.charset.Charset attribute), 1066
body_line_iterator() (in module email.iterators), 1071
BOM (in module codecs), 159
BOM_BE (in module codecs), 159
BOM_LE (in module codecs), 159
BOM_UTF8 (in module codecs), 159
BOM_UTF16 (in module codecs), 159
BOM_UTF16_BE (in module codecs), 159
BOM_UTF16_LE (in module codecs), 159

BOM_UTF32 (in module codecs), 159
BOM_UTF32_BE (in module codecs), 159
BOM_UTF32_LE (in module codecs), 159
bool (built-in class), 6
Boolean
 object, 30
 operations, 29
 type, 6
 values, 84
BOOLEAN_STATES (configparser.ConfigParser attribute), 509
bootstrap() (in module ensurepip), 1642
border() (curses.window method), 693
bottom() (curses.panel.Panel method), 707
bottom_panel() (in module curses.panel), 707
BoundArguments (class in inspect), 1734
BoundaryError, 1036
BoundedSemaphore (class in asyncio), 866
BoundedSemaphore (class in multiprocessing), 779
BoundedSemaphore (class in threading), 759
BoundedSemaphore() (multiprocessing.managers.SyncManager method), 785
box() (curses.window method), 693
bformat() (bdb.Breakpoint method), 1601
bprint() (bdb.Breakpoint method), 1602
break (pdb command), 1610
break_anywhere() (bdb.Bdb method), 1603
break_here() (bdb.Bdb method), 1603
break_long_words (textwrap.TextWrapper attribute), 142
BREAK_LOOP (opcode), 1812
break_on_hyphens (textwrap.TextWrapper attribute), 142
Breakpoint (class in bdb), 1601
breakpoint() (built-in function), 6
breakpointhook() (in module sys), 1660
breakpoints, 1442
broadcast_address (ipaddress.IPv4Network attribute), 1312
broadcast_address (ipaddress.IPv6Network attribute), 1315
broken (threading.Barrier attribute), 762
BrokenBarrierError, 762
BrokenExecutor, 813
BrokenPipeError, 93
BrokenProcessPool, 813
BrokenThreadPool, 813
BROWSER, 1173, 1174
BsdDbShelf (class in shelve), 431
buffer (2to3 fixer), 1581
buffer (io.TextIOBase attribute), 597
buffer (unittest.TestResult attribute), 1515
buffer protocol
 binary sequence types, 53
 str (built-in class), 44
buffer size, I/O, 18
buffer_info() (array.array method), 239
buffer_size (xml.parsers.expat.xmlparser attribute), 1164
buffer_text (xml.parsers.expat.xmlparser attribute), 1165
buffer_updated() (asyncio.BufferedProtocol method), 905
buffer_used (xml.parsers.expat.xmlparser attribute), 1165
BufferedIOBase (class in io), 593
BufferedProtocol (class in asyncio), 903
BufferedRandom (class in io), 596
BufferedReader (class in io), 595
BufferedRWPair (class in io), 596
BufferedWriter (class in io), 596
BufferError, 88
BufferingHandler (class in logging.handlers), 681
BufferTooShort, 772
bufsize() (osaudiodev.osss_audio_device method), 1338
BUILD_CONST_KEY_MAP (opcode), 1815
BUILD_LIST (opcode), 1814
BUILD_LIST_UNPACK (opcode), 1815
BUILD_MAP (opcode), 1815
BUILD_MAP_UNPACK (opcode), 1815
BUILD_MAP_UNPACK_WITH_CALL (opcode), 1815
build_opener() (in module urllib.request), 1194
BUILD_SET (opcode), 1814
BUILD_SET_UNPACK (opcode), 1815
BUILD_SLICE (opcode), 1818
BUILD_STRING (opcode), 1815
BUILD_TUPLE (opcode), 1814
BUILD_TUPLE_UNPACK (opcode), 1815
BUILD_TUPLE_UNPACK_WITH_CALL (opcode), 1815
built-in
 types, 29
built-in function
 compile, 83, 250, 1783
 complex, 31
 eval, 83, 255, 1783
 exec, 10, 83, 1783
 float, 31
 hash, 39
 int, 31
 len, 37, 77
 max, 37
 min, 37
 slice, 1818
 type, 83

builtin_module_names (in module `sys`), 1660
BuiltinFunctionType (in module `types`), 250
BuiltinImporter (class in `importlib.machinery`), 1770
BuiltinMethodType (in module `types`), 250
builtins (module), 1680
ButtonBox (class in `tkinter.tix`), 1434
bye() (in module `turtle`), 1385
byref() (in module `ctypes`), 742
bytearray
 formatting, 66
 interpolation, 66
 methods, 56
 object, 39, 53, 55
bytearray (built-in class), 55
bytecode, 1901
byte-code
 file, 1801, 1890
Bytecode (class in `dis`), 1807
BYTECODE_SUFFIXES (in module `imp`
 `portlib.machinery`), 1770
Bytecode.codeobj (in module `dis`), 1807
Bytecode.first_line (in module `dis`), 1807
byteorder (in module `sys`), 1659
bytes
 formatting, 66
 interpolation, 66
 methods, 56
 object, 53, 54
 str (built-in class), 44
bytes (built-in class), 54
bytes (`uuid.UUID` attribute), 1263
bytes_le (`uuid.UUID` attribute), 1263
BytesFeedParser (class in `email.parser`), 1023
BytesGenerator (class in `email.generator`), 1026
BytesHeaderParser (class in `email.parser`), 1024
BytesIO (class in `io`), 595
bytes-like object, 1900
BytesParser (class in `email.parser`), 1024
ByteString (class in `collections.abc`), 229
ByteString (class in `typing`), 1460
byteswap() (`array.array` method), 239
byteswap() (in module `audioop`), 1322
BytesWarning, 94
bz2 (module), 465
BZ2Compressor (class in `bz2`), 467
BZ2Decompressor (class in `bz2`), 467
BZ2File (class in `bz2`), 466

C

C
 language, 30, 31
 structures, 151

-c <tarfile> <source1> ... <sourceN>
 tarfile command line option, 489

-c <zipfile> <source1> ... <sourceN>
 zipfile command line option, 481
-c, --catch
 unittest command line option, 1495
-c, --compress
 zipapp command line option, 1653
-c, --count
 trace command line option, 1628
-C, --coverdir=<dir>
 trace command line option, 1628
c_bool (class in `ctypes`), 747
C_BUILTIN (in module `imp`), 1894
c_byte (class in `ctypes`), 746
c_char (class in `ctypes`), 746
c_char_p (class in `ctypes`), 746
c_contiguous (memoryview attribute), 74
c_double (class in `ctypes`), 746
C_EXTENSION (in module `imp`), 1894
c_float (class in `ctypes`), 746
c_int (class in `ctypes`), 746
c_int8 (class in `ctypes`), 746
c_int16 (class in `ctypes`), 746
c_int32 (class in `ctypes`), 746
c_int64 (class in `ctypes`), 746
c_long (class in `ctypes`), 746
c_longdouble (class in `ctypes`), 746
c_longlong (class in `ctypes`), 747
c_short (class in `ctypes`), 747
c_size_t (class in `ctypes`), 747
c_ssize_t (class in `ctypes`), 747
c_ubyte (class in `ctypes`), 747
c_uint (class in `ctypes`), 747
c_uint8 (class in `ctypes`), 747
c_uint16 (class in `ctypes`), 747
c_uint32 (class in `ctypes`), 747
c_uint64 (class in `ctypes`), 747
c_ulong (class in `ctypes`), 747
c_ulonglong (class in `ctypes`), 747
c_ushort (class in `ctypes`), 747
c_void_p (class in `ctypes`), 747
c_wchar (class in `ctypes`), 747
c_wchar_p (class in `ctypes`), 747
CAB (class in `msilib`), 1830
cache_from_source() (in module `imp`), 1892
cache_from_source() (in module `importlib.util`), 1774
cached (`importlib.machinery.ModuleSpec` attribute), 1774
CacheFTPHandler (class in `urllib.request`), 1197
calcobjsize() (in module `test.support`), 1592
calcsize() (in module `struct`), 152
calcvobjsize() (in module `test.support`), 1593
Calendar (class in `calendar`), 206
calendar (module), 206

calendar() (in module calendar), 210
call() (in module subprocess), 825
call() (in module unittest.mock), 1550
call_args (unittest.mock.Mock attribute), 1530
call_args_list (unittest.mock.Mock attribute), 1530
call_at() (asyncio.loop method), 878
call_count (unittest.mock.Mock attribute), 1528
call_exception_handler() (asyncio.loop method), 888
CALL_FUNCTION (opcode), 1817
CALL_FUNCTION_EX (opcode), 1817
CALL_FUNCTION_kw (opcode), 1817
call_later() (asyncio.loop method), 878
call_list() (unittest.mock.call method), 1550
CALL_METHOD (opcode), 1818
call_soon() (asyncio.loop method), 877
call_soon_threadsafe() (asyncio.loop method), 877
call_tracing() (in module sys), 1660
Callable (class in collections.abc), 228
Callable (in module typing), 1466
callable() (built-in function), 7
CallableProxyType (in module weakref), 244
callback (optparse.Option attribute), 1877
callback() (contextlib.ExitStack method), 1702
callback_args (optparse.Option attribute), 1877
callback_kwargs (optparse.Option attribute), 1877
callbacks (in module gc), 1725
called (unittest.mock.Mock attribute), 1528
CalledProcessError, 816
CAN_BCM (in module socket), 931
can_change_color() (in module curses), 686
can_fetch() (urllib.robotparser.RobotFileParser method), 1219
CAN_ISOTP (in module socket), 931
CAN_RAW_FD_FRAMES (in module socket), 931
can_symlink() (in module test.support), 1593
can_write_eof() (asyncio.StreamWriter method), 859
can_write_eof() (asyncio.WriteTransport method), 901
can_xattr() (in module test.support), 1593
cancel() (asyncio.Future method), 897
cancel() (asyncio.Handle method), 890
cancel() (asyncio.Task method), 853
cancel() (concurrent.futures.Future method), 811
cancel() (sched.scheduler method), 832
cancel() (threading.Timer method), 761
cancel_dump_traceback_later() (in module fault handler), 1606
cancel_join_thread() (multiprocessing.Queue method), 774
cancelled() (asyncio.Future method), 896
cancelled() (asyncio.Handle method), 890
cancelled() (asyncio.Task method), 854
cancelled() (concurrent.futures.Future method), 811
CancelledError, 813, 874
CannotSendHeader, 1223
CannotSendRequest, 1223
canonic() (bdb.Bdb method), 1602
canonical() (decimal.Context method), 308
canonical() (decimal.Decimal method), 299
capa() (poplib.POP3 method), 1235
capitalize() (bytearray method), 61
capitalize() (bytes method), 61
capitalize() (str method), 44
captured_stderr() (in module test.support), 1591
captured_stdin() (in module test.support), 1591
captured_stdout() (in module test.support), 1591
captureWarnings() (in module logging), 660
capwords() (in module string), 107
casefold() (str method), 44
cast() (in module ctypes), 743
cast() (in module typing), 1464
cast() (memoryview method), 71
cat() (in module nis), 1861
catch_warnings (class in warnings), 1687
category() (in module unicodedata), 143
cbreak() (in module curses), 686
ccc() (ftplib.FTP_TLS method), 1233
C-contiguous, 1901
CDLL (class in ctypes), 737
ceil() (in module math), 31, 284
center() (bytearray method), 59
center() (bytes method), 59
center() (str method), 45
CERT_NONE (in module ssl), 956
CERT_OPTIONAL (in module ssl), 957
CERT_REQUIRED (in module ssl), 957
cert_store_stats() (ssl.SSLContext method), 968
cert_time_to_seconds() (in module ssl), 955
CertificateError, 953
certificates, 975
CFUNCTYPE() (in module ctypes), 740
CGI
 debugging, 1181
 exceptions, 1182
 protocol, 1175
 security, 1180
 tracebacks, 1182
cgi (module), 1175
cgi_directories (http.server.CGIHTTPRequestHandler attribute), 1280
CGIHandler (class in wsgiref.handlers), 1188
CGIHTTPRequestHandler (class in http.server), 1279
cgitb (module), 1182
CGIXMLRPCRequestHandler (class in xmlrpc.server), 1301

chain() (in module itertools), 339
 chaining
 comparisons, 30
 ChainMap (class in collections), 211
 ChainMap (class in typing), 1461
 change_cwd() (in module test.support), 1591
 CHANNEL_BINDING_TYPES (in module ssl), 961
 channel_class (smtplib.SMTPServer attribute), 1257
 channels() (osaudiodev.oss_audio_device method),
 1337
 CHAR_MAX (in module locale), 1355
 character, 142
 CharacterDataHandler()
 (xml.parsers.expat.xmlparser method),
 1166
 characters() (xml.sax.handler.ContentHandler
 method), 1156
 characters_written (BlockingIOError attribute), 93
 Charset (class in email.charset), 1066
 charset() (gettext.NullTranslations method), 1344
 chdir() (in module os), 558
 check (lzma.LZMADecompressor attribute), 471
 check() (imaplib.IMAP4 method), 1239
 check() (in module tabnanny), 1799
 check_all() (in module test.support), 1596
 check_call() (in module subprocess), 826
 check_free_after_iterating() (in module
 test.support), 1596
 check_hostname (ssl.SSLContext attribute), 973
 check_impl_detail() (in module test.support), 1589
 check_no_resource_warning() (in module
 test.support), 1590
 check_output() (doctest.OutputChecker method),
 1488
 check_output() (in module subprocess), 826
 check_returncode() (subprocess.CompletedProcess
 method), 815
 check_syntax_error() (in module test.support), 1594
 check_unused_args() (string.Formatter method), 99
 check_warnings() (in module test.support), 1590
 checkbox() (msilib.Dialog method), 1832
 checkcache() (in module linecache), 405
 CHECKED_HASH (py_compile.PycInvalidationMode
 attribute), 1802
 checkfuncname() (in module bdb), 1605
 CheckList (class in tkinter.tix), 1436
 checkssizeof() (in module test.support), 1593
 checksum
 Cyclic Redundancy Check, 460
 chflags() (in module os), 558
 chgat() (curses.window method), 693
 childNodes (xml.dom.Node attribute), 1137
 ChildProcessError, 93
 children (pyclbr.Class attribute), 1801
 children (pyclbr.Function attribute), 1801
 chmod() (in module os), 559
 chmod() (pathlib.Path method), 378
 choice() (in module random), 325
 choice() (in module secrets), 537
 choices (optparse.Option attribute), 1877
 choices() (in module random), 325
 chown() (in module os), 559
 chown() (in module shutil), 409
 chr() (built-in function), 7
 chroot() (in module os), 560
 Chunk (class in chunk), 1332
 chunk (module), 1332
 cipher
 DES, 1848
 cipher() (ssl.SSLSocket method), 965
 circle() (in module turtle), 1364
 CIRCUMFLEX (in module token), 1794
 CIRCUMFLEXEQUAL (in module token), 1794
 Clamped (class in decimal), 312
 class, 1901
 Class (class in symtable), 1792
 Class browser, 1439
 class variable, 1901
 classmethod() (built-in function), 7
 ClassMethodDescriptorType (in module types), 250
 ClassVar (in module typing), 1466
 CLD_CONTINUED (in module os), 582
 CLD_DUMPED (in module os), 582
 CLD_EXITED (in module os), 582
 CLD_TRAPPED (in module os), 582
 clean() (mailbox.Maildir method), 1087
 cleandoc() (in module inspect), 1731
 CleanImport (class in test.support), 1597
 clear (pdb command), 1611
 Clear Breakpoint, 1442
 clear() (asyncio.Event method), 864
 clear() (collections.deque method), 216
 clear() (curses.window method), 693
 clear() (dict method), 78
 clear() (email.message.EmailMessage method), 1022
 clear() (frozenset method), 76
 clear() (http.cookiejar.CookieJar method), 1286
 clear() (in module turtle), 1372, 1379
 clear() (mailbox.Mailbox method), 1085
 clear() (sequence method), 39
 clear() (threading.Event method), 760
 clear() (xml.etree.ElementTree.Element
 method), 1128
 clear_all_breaks() (bdb.Bdb method), 1604
 clear_all_file_breaks() (bdb.Bdb method), 1604
 clear_bpbynumber() (bdb.Bdb method), 1604
 clear_break() (bdb.Bdb method), 1604
 clear_cache() (in module filecmp), 397

clear_content() (email.message.EmailMessage method), 1022
clear_flags() (decimal.Context method), 307
clear_frames() (in module traceback), 1717
clear_history() (in module readline), 147
clear_session_cookies() (http.cookiejar.CookieJar method), 1286
clear_traces() (in module tracemalloc), 1634
clear_traps() (decimal.Context method), 307
clearcache() (in module linecache), 405
ClearData() (msilib.Record method), 1830
clearok() (curses.window method), 693
clearscreen() (in module turtle), 1379
clearstamp() (in module turtle), 1365
clearstamps() (in module turtle), 1365
Client() (in module multiprocessing.connection), 793
client_address (http.server.BaseHTTPRequestHandler attribute), 1275
clock() (in module time), 601
CLOCK_BOOTTIME (in module time), 608
clock_getres() (in module time), 602
clock_gettime() (in module time), 602
clock_gettime_ns() (in module time), 602
CLOCK_HIGHRES (in module time), 609
CLOCK_MONOTONIC (in module time), 609
CLOCK_MONOTONIC_RAW (in module time), 609
CLOCK_PROCESS_CPUTIME_ID (in module time), 609
CLOCK_PROF (in module time), 609
CLOCK_REALTIME (in module time), 609
clock_settime() (in module time), 602
clock_settime_ns() (in module time), 602
CLOCK_THREAD_CPUTIME_ID (in module time), 609
CLOCK_UPTIME (in module time), 609
clone() (email.generator.BytesGenerator method), 1027
clone() (email.generator.Generator method), 1028
clone() (email.policy.Policy method), 1031
clone() (in module turtle), 1377
clone() (pipes.Template method), 1856
cloneNode() (xml.dom.Node method), 1138
close() (aifc.aifc method), 1325, 1326
close() (asyncio.AbstractChildWatcher method), 914
close() (asyncio.BaseTransport method), 900
close() (asyncio.loop method), 877
close() (asyncio.Server method), 891
close() (asyncio.StreamWriter method), 859
close() (asyncio.SubprocessTransport method), 903
close() (asyncore.dispatcher method), 998
close() (chunk.Chunk method), 1332
close() (contextlib.ExitStack method), 1702
close() (dbm.dumb.dumbdbm method), 437
close() (dbm.gnu.gdbm method), 435
close() (dbm.ndbm.ndbm method), 436
close() (email.parser.BytesFeedParser method), 1024
close() (ftplib.FTP method), 1233
close() (html.parser.HTMLParser method), 1113
close() (http.client.HTTPConnection method), 1225
close() (imaplib.IMAP4 method), 1239
close() (in module fileinput), 390
close() (in module os), 548
close() (in module socket), 934
close() (io.IOBase method), 591
close() (logging.FileHandler method), 673
close() (logging.Handler method), 650
close() (logging.handlers.MemoryHandler method), 682
close() (logging.handlers.NTEventLogHandler method), 680
close() (logging.handlers.SocketHandler method), 677
close() (logging.handlers.SysLogHandler method), 678
close() (mailbox.Mailbox method), 1086
close() (mailbox.Maildir method), 1087
close() (mailbox.MH method), 1089
close() (mmap.mmap method), 1011
Close() (msilib.Database method), 1828
Close() (msilib.View method), 1829
close() (multiprocessing.connection.Connection method), 777
close() (multiprocessing.connection.Listener method), 794
close() (multiprocessing.pool.Pool method), 792
close() (multiprocessing.Process method), 772
close() (multiprocessing.Queue method), 774
close() (osaudiodev.oss_audio_device method), 1336
close() (osaudiodev.oss_mixer_device method), 1338
close() (os.scandir method), 565
close() (select.devpoll method), 987
close() (select.epoll method), 989
close() (select.kqueue method), 990
close() (selectors.BaseSelector method), 994
close() (shelve.Shelf method), 430
close() (socket.socket method), 939
close() (sqlite3.Connection method), 442
close() (sqlite3.Cursor method), 450
close() (sunau.AU_read method), 1328
close() (sunau.AU_write method), 1329
close() (tarfile.TarFile method), 487
close() (telnetlib.Telnet method), 1261
close() (urllib.request.BaseHandler method), 1200
close() (wave.Wave_read method), 1330
close() (wave.Wave_write method), 1331

Close() (winreg.PyHKEY method), 1841
 close() (xml.etree.ElementTree.TreeBuilder method), 1131
 close() (xml.etree.ElementTree.XMLParser method), 1132
 close() (xml.etree.ElementTree.XMLPullParser method), 1133
 close() (xml.sax.xmlreader.IncrementalParser method), 1161
 close() (zipfile.ZipFile method), 476
 close_connection (http.server.BaseHTTPRequestHandler attribute), 1275
 close_when_done() (asynchat.async_chat method), 1001
 closed (http.client.HTTPResponse attribute), 1227
 closed (io.IOBase attribute), 591
 closed (mmap.mmap attribute), 1011
 closed (ossaudiodev.oss_audio_device attribute), 1338
 closed (select.devpoll attribute), 987
 closed (select.epoll attribute), 989
 closed (select.kqueue attribute), 990
 CloseKey() (in module winreg), 1834
 closelog() (in module syslog), 1862
 closerange() (in module os), 548
 closing() (in module contextlib), 1698
 clrbot() (curses.window method), 694
 clrtoeo1() (curses.window method), 694
 cmath (module), 289
 cmd
 module, 1608
 Cmd (class in cmd), 1392
 cmd (module), 1392
 cmd (subprocess.CalledProcessError attribute), 816
 cmd (subprocess.TimeoutExpired attribute), 816
 cmdloop() (cmd.Cmd method), 1392
 cmdqueue (cmd.Cmd attribute), 1394
 cmp() (in module filecmp), 397
 cmp_op (in module dis), 1819
 cmp_to_key() (in module functools), 352
 cmpfiles() (in module filecmp), 397
 CMSG_LEN() (in module socket), 937
 CMSG_SPACE() (in module socket), 937
 CO_ASYNC_GENERATOR (in module inspect), 1741
 CO_COROUTINE (in module inspect), 1741
 CO_GENERATOR (in module inspect), 1741
 CO_ITERABLE_COROUTINE (in module inspect), 1741
 CO_NESTED (in module inspect), 1741
 CO_NEWLOCALS (in module inspect), 1741
 CO_NOFREE (in module inspect), 1741
 CO_OPTIMIZED (in module inspect), 1741
 CO_VARARGS (in module inspect), 1741
 CO_VARKEYWORDS (in module inspect), 1741
 code (module), 1747
 code (SystemExit attribute), 91
 code (urllib.error.HTTPError attribute), 1218
 code (xml.etree.ElementTree.ParseError attribute), 1133
 code (xml.parsers.expat.ExpatError attribute), 1167
 code object, 83, 432
 code_info() (in module dis), 1807
 CodecInfo (class in codecs), 157
 codecs, 156
 decode, 156
 encode, 156
 codecs (module), 156
 coded_value (http.cookies.Morsel attribute), 1282
 codeop (module), 1749
 codepoint2name (in module html.entities), 1116
 codes (in module xml.parsers.expat.errors), 1169
 CODESET (in module locale), 1352
 CodeType (in module types), 249
 coercion, 1901
 col_offset (ast.AST attribute), 1786
 collapse_addresses() (in module ipaddress), 1318
 collapse_rfc2231_value() (in module email.utils), 1071
 collect() (in module gc), 1723
 collect_incoming_data() (asynchat.async_chat method), 1001
 Collection (class in collections.abc), 229
 Collection (class in typing), 1459
 collections (module), 210
 collections.abc (module), 227
 colno (json.JSONDecodeError attribute), 1079
 colno (re.error attribute), 118
 COLON (in module token), 1794
 color() (in module turtle), 1371
 color_content() (in module curses), 686
 color_pair() (in module curses), 686
 colormode() (in module turtle), 1384
 colorsys (module), 1333
 COLS, 691
 column() (tkinter.ttk.Treeview method), 1426
 COLUMNS, 692
 columns (os.terminal_size attribute), 556
 combinations() (in module itertools), 340
 combinations_with_replacement() (in module itertools), 341
 combine() (datetime.datetime class method), 184
 combining() (in module unicodedata), 143
 ComboBox (class in tkinter.tix), 1434
 Combobox (class in tkinter.ttk), 1419
 COMMA (in module token), 1794
 command (http.server.BaseHTTPRequestHandler attribute), 1275

CommandCompiler (class in `codeop`), 1750
commands (`pdb` command), 1611
comment (`http.cookiejar.Cookie` attribute), 1291
COMMENT (in module `token`), 1795
comment (`zipfile.ZipFile` attribute), 478
comment (`zipfile.ZipInfo` attribute), 480
`Comment()` (in module `xml.etree.ElementTree`), 1125
`comment_url` (`http.cookiejar.Cookie` attribute), 1291
commenters (`shlex.shlex` attribute), 1399
`CommentHandler()` (`xml.parsers.expat.xmlparser` method), 1167
`commit()` (`msilib.CAB` method), 1830
`Commit()` (`msilib.Database` method), 1828
`commit()` (`sqlite3.Connection` method), 441
`common` (`filecmp.dircmp` attribute), 398
Common Gateway Interface, 1175
`common_dirs` (`filecmp.dircmp` attribute), 398
`common_files` (`filecmp.dircmp` attribute), 398
`common_funny` (`filecmp.dircmp` attribute), 398
`common_types` (in module `mimetypes`), 1102
`commonpath()` (in module `os.path`), 385
`commonprefix()` (in module `os.path`), 385
`communicate()` (`asyncio.asyncio.subprocess.Process` method), 869
`communicate()` (`subprocess.Popen` method), 821
`compare()` (`decimal.Context` method), 308
`compare()` (`decimal.Decimal` method), 299
`compare()` (`difflib.Differ` method), 136
`compare_digest()` (in module `hmac`), 537
`compare_digest()` (in module `secrets`), 538
`compare_networks()` (`ipaddress.IPv4Network` method), 1314
`compare_networks()` (`ipaddress.IPv6Network` method), 1315
`COMPARE_OP` (opcode), 1815
`compare_signal()` (`decimal.Context` method), 308
`compare_signal()` (`decimal.Decimal` method), 300
`compare_to()` (`tracemalloc.Snapshot` method), 1637
`compare_total()` (`decimal.Context` method), 308
`compare_total()` (`decimal.Decimal` method), 300
`compare_total_mag()` (`decimal.Context` method), 308
`compare_total_mag()` (`decimal.Decimal` method), 300
comparing
 objects, 30
comparison
 operator, 30
`COMPARISON_FLAGS` (in module `doctest`), 1477
comparisons
 chaining, 30
`Compat32` (class in `email.policy`), 1035
`compat32` (in module `email.policy`), 1036
`compile`
 built-in function, 83, 250, 1783
`Compile` (class in `codeop`), 1750
`compile()` (built-in function), 7
`compile()` (in module `py_compile`), 1801
`compile()` (in module `re`), 113
`compile()` (`parser.ST` method), 1784
`compile_command()` (in module `code`), 1747
`compile_command()` (in module `codeop`), 1749
`compile_dir()` (in module `compileall`), 1804
`compile_file()` (in module `compileall`), 1805
`compile_path()` (in module `compileall`), 1805
`compileall` (module), 1803
`compileall` command line option
 -b, 1803
 -d `destdir`, 1803
 directory ..., 1803
 -f, 1803
 file ..., 1803
 -i `list`, 1803
 -invalidation-mode [timestamp|checked-hash|unchecked-hash], 1804
 -j `N`, 1804
 -l, 1803
 -q, 1803
 -r, 1804
 -x `regex`, 1803
`compilest()` (in module `parser`), 1783
`complete()` (`rlcompleter.Completer` method), 150
`complete_statement()` (in module `sqlite3`), 440
`completedefault()` (`cmd.Cmd` method), 1393
`CompletedProcess` (class in `subprocess`), 815
complex
 built-in function, 31
`complex` (built-in class), 8
`Complex` (class in `numbers`), 281
complex number, 1901
 literals, 31
 object, 30
`compress()` (`bz2.BZ2Compressor` method), 467
`compress()` (in module `bz2`), 468
`compress()` (in module `gzip`), 464
`compress()` (in module `itertools`), 341
`compress()` (in module `lzma`), 471
`compress()` (in module `zlib`), 459
`compress()` (`lzma.LZMACompressor` method), 470
`compress()` (`zlib.Compress` method), 461
`compress_size` (`zipfile.ZipInfo` attribute), 481
`compress_type` (`zipfile.ZipInfo` attribute), 480
`compressed` (`ipaddress.IPv4Address` attribute), 1308
`compressed` (`ipaddress.IPv4Network` attribute), 1312
`compressed` (`ipaddress.IPv6Address` attribute), 1309
`compressed` (`ipaddress.IPv6Network` attribute), 1315
`compression()` (`ssl.SSLSocket` method), 965
`CompressionError`, 483

compressobj() (in module zlib), 460
 COMSPEC, 581, 818
 concat() (in module operator), 361
 concatenation
 operation, 37
 concurrent.futures (module), 807
 Condition (class in asyncio), 864
 Condition (class in multiprocessing), 779
 Condition (class in threading), 757
 condition (pdb command), 1611
 condition() (msilib.Control method), 1831
 Condition() (multiprocessing.managers.SyncManager method), 786
 ConfigParser (class in configparser), 513
 configparser (module), 499
 configuration
 file, 499
 file, debugger, 1610
 file, path, 1742
 configuration information, 1677
 configure() (tkinter.ttk.Style method), 1430
 configure_mock() (unittest.mock.Mock method), 1527
 confstr() (in module os), 585
 confstr_names (in module os), 585
 conjugate() (complex number method), 31
 conjugate() (decimal.Decimal method), 300
 conjugate() (numbers.Complex method), 281
 conn (smtpd.SMTPChannel attribute), 1259
 connect() (asyncore.dispatcher method), 998
 connect() (ftplib.FTP method), 1231
 connect() (http.client.HTTPConnection method), 1225
 connect() (in module sqlite3), 439
 connect() (multiprocessing.managers.BaseManager method), 784
 connect() (smtplib.SMTP method), 1252
 connect() (socket.socket method), 939
 connect_accepted_socket() (asyncio.loop method), 882
 connect_ex() (socket.socket method), 939
 connect_read_pipe() (asyncio.loop method), 886
 connect_write_pipe() (asyncio.loop method), 886
 Connection (class in multiprocessing.connection), 777
 Connection (class in sqlite3), 441
 connection (sqlite3.Cursor attribute), 450
 connection_lost() (asyncio.BaseProtocol method), 904
 connection_made() (asyncio.BaseProtocol method), 903
 ConnectionAbortedError, 93
 ConnectionError, 93
 ConnectionRefusedError, 93
 ConnectionResetError, 93
 ConnectRegistry() (in module winreg), 1834
 const (optparse.Option attribute), 1877
 constructor() (in module copyreg), 428
 consumed (asyncio.LimitOverrunError attribute), 875
 container
 iteration over, 36
 Container (class in collections.abc), 228
 Container (class in typing), 1459
 contains() (in module operator), 362
 content type
 MIME, 1100
 content_manager (email.policy.EmailPolicy attribute), 1034
 content_type (email.headerregistry.ContentTypeHeader attribute), 1040
 ContentDispositionHeader (class in email.headerregistry), 1040
 ContentHandler (class in xml.sax.handler), 1153
 ContentManager (class in email.contentmanager), 1043
 contents (ctypes._Pointer attribute), 750
 contents() (importlib.abc.ResourceReader method), 1765
 contents() (in module importlib.resources), 1769
 ContentTooShortError, 1218
 ContentTransferEncoding (class in email.headerregistry), 1040
 ContentTypeHeader (class in email.headerregistry), 1040
 Context (class in contextvars), 840
 Context (class in decimal), 306
 context (ssl.SSLSocket attribute), 966
 context management protocol, 81
 context manager, 81, 1901
 context_diff() (in module difflib), 129
 ContextDecorator (class in contextlib), 1700
 contextlib (module), 1696
 ContextManager (class in typing), 1461
 contextmanager() (in module contextlib), 1696
 ContextVar (class in contextvars), 839
 contextvars (module), 839
 contextvars.Token (class in contextvars), 840
 contiguous, 1901
 contiguous (memoryview attribute), 74
 continue (pdb command), 1612
 CONTINUE_LOOP (opcode), 1812
 Control (class in msilib), 1831
 Control (class in tkinter.tix), 1434
 control() (msilib.Dialog method), 1831
 control() (select.kqueue method), 990
 controlnames (in module curses.ascii), 706

controls() (osaudiodev.oss_mixer_device method), 1338
ConversionError, 521
conversions
 numeric, 31
convert_arg_line_to_args() (argparse.ArgumentParser method), 641
convert_field() (string.Formatter method), 99
Cookie (class in http.cookiejar), 1285
CookieError, 1280
CookieJar (class in http.cookiejar), 1284
cookiejar (urllib.request.HTTPCookieProcessor attribute), 1202
CookiePolicy (class in http.cookiejar), 1284
Coordinated Universal Time, 601
Copy, 1442
copy
 module, 428
 protocol, 421
copy (module), 252
copy() (collections.deque method), 216
copy() (contextvars.Context method), 841
copy() (decimal.Context method), 307
copy() (dict method), 78
copy() (frozenset method), 76
copy() (hashlib.hash method), 527
copy() (hmac.HMAC method), 536
copy() (http.cookies.Morsel method), 1282
copy() (imaplib.IMAP4 method), 1239
copy() (in module copy), 252
copy() (in module multiprocessing.sharedctypes), 783
copy() (in module shutil), 407
copy() (pipes.Template method), 1856
copy() (sequence method), 39
copy() (types.MappingProxyType method), 251
copy() (zlib.Compress method), 461
copy() (zlib.Decompress method), 462
copy2() (in module shutil), 407
copy_abs() (decimal.Context method), 308
copy_abs() (decimal.Decimal method), 300
copy_context() (in module contextvars), 840
copy_decimal() (decimal.Context method), 307
copy_location() (in module ast), 1790
copy_negate() (decimal.Context method), 308
copy_negate() (decimal.Decimal method), 300
copy_sign() (decimal.Context method), 308
copy_sign() (decimal.Decimal method), 300
copyfile() (in module shutil), 406
copyfileobj() (in module shutil), 406
copying files, 406
copymode() (in module shutil), 407
copyreg (module), 428
copyright (built-in variable), 28
copyright (in module sys), 1660
copysign() (in module math), 284
copystat() (in module shutil), 407
copytree() (in module shutil), 408
coroutine, 1901
Coroutine (class in collections.abc), 230
Coroutine (class in typing), 1461
coroutine function, 1901
coroutine() (in module asyncio), 856
coroutine() (in module types), 252
CoroutineType (in module types), 249
cos() (in module cmath), 291
cos() (in module math), 287
cosh() (in module cmath), 291
cosh() (in module math), 288
count (tracemalloc.Statistic attribute), 1638
count (tracemalloc.StatisticDiff attribute), 1638
count() (array.array method), 239
count() (bytearray method), 56
count() (bytes method), 56
count() (collections.deque method), 216
count() (in module itertools), 341
count() (sequence method), 37
count() (str method), 45
count_diff (tracemalloc.StatisticDiff attribute), 1638
Counter (class in collections), 213
Counter (class in typing), 1461
countOf() (in module operator), 362
countTestCases() (unittest.TestCase method), 1510
countTestCases() (unittest.TestSuite method), 1512
CoverageResults (class in trace), 1629
cProfile (module), 1616
CPU time, 601, 604, 607
cpu_count() (in module multiprocessing), 775
cpu_count() (in module os), 585
CPython, 1901
cpython_only() (in module test.support), 1594
crawl_delay() (urllib.robotparser.RobotFileParser method), 1219
CRC (zipfile.ZipInfo attribute), 481
crc32() (in module binascii), 1108
crc32() (in module zlib), 460
crc_hqx() (in module binascii), 1108
–create <tarfile> <source1> ... <sourceN>
 tarfile command line option, 489
–create <zipfile> <source1> ... <sourceN>
 zipfile command line option, 481
create() (imaplib.IMAP4 method), 1239
create() (in module venv), 1647
create() (venv.EnvBuilder method), 1646
create_aggregate() (sqlite3.Connection method), 442
create_archive() (in module zipapp), 1653
create_autospec() (in module unittest.mock), 1552
CREATE_BREAKAWAY_FROM_JOB (in module subprocess), 825

create_collation() (sqlite3.Connection method), 443
create_configuration() (venv.EnvBuilder method), 1647
create_connection() (asyncio.loop method), 879
create_connection() (in module socket), 934
create_datagram_endpoint() (asyncio.loop method), 880
create_decimal() (decimal.Context method), 307
create_decimal_from_float() (decimal.Context method), 307
create_default_context() (in module ssl), 951
CREATE_DEFAULT_ERROR_MODE (in module subprocess), 825
create_empty_file() (in module test.support), 1589
create_function() (sqlite3.Connection method), 442
create_future() (asyncio.loop method), 879
create_module() (importlib.abc.Loader method), 1763
create_module() (importlib.machinery.ExtensionFileLoader method), 1773
CREATE_NEW_CONSOLE (in module subprocess), 824
CREATE_NEW_PROCESS_GROUP (in module subprocess), 824
CREATE_NO_WINDOW (in module subprocess), 825
create_server() (asyncio.loop method), 881
create_socket() (asyncore.dispatcher method), 997
create_stats() (profile.Profile method), 1617
create_string_buffer() (in module ctypes), 743
create_subprocess_exec() (in module asyncio), 867
create_subprocess_shell() (in module asyncio), 867
create_system (zipfile.ZipInfo attribute), 480
create_task() (asyncio.loop method), 879
create_task() (in module asyncio), 847
create_unicode_buffer() (in module ctypes), 743
create_unix_connection() (asyncio.loop method), 881
create_unix_server() (asyncio.loop method), 882
create_version (zipfile.ZipInfo attribute), 480
createAttribute() (xml.dom.Document method), 1139
createAttributeNS() (xml.dom.Document method), 1139
createComment() (xml.dom.Document method), 1139
createDocument() (xml.dom.DOMImplementation method), 1136
createDocumentType() (xml.dom.DOMImplementation method), 1136
createElement() (xml.dom.Document method), 1139
createElementNS() (xml.dom.Document method),

1139
createfilehandler() (tkinter.Widget.tk method), 1414
CreateKey() (in module winreg), 1834
CreateKeyEx() (in module winreg), 1835
createLock() (logging.Handler method), 650
createLock() (logging.NullHandler method), 673
createProcessingInstruction() (xml.dom.Document method), 1139
CreateRecord() (in module msilib), 1827
createSocket() (logging.handlers.SocketHandler method), 677
createTextNode() (xml.dom.Document method), 1139
credits (built-in variable), 28
critical() (in module logging), 658
critical() (logging.Logger method), 648
CRNCYSTR (in module locale), 1352
cross() (in module audioop), 1322
crypt
 module, 1846
crypt (module), 1848
crypt() (in module crypt), 1849
crypt(3), 1848, 1849
cryptography, 525
cssclass_month (calendar.HTMLCalendar attribute), 208
cssclass_month_head (calendar.HTMLCalendar attribute), 208
cssclass_noday (calendar.HTMLCalendar attribute), 208
cssclass_year (calendar.HTMLCalendar attribute), 208
cssclass_year_head (calendar.HTMLCalendar attribute), 208
cssclasses (calendar.HTMLCalendar attribute), 208
cssclasses_weekday_head (calendar.HTMLCalendar attribute), 208
csv, 493
csv (module), 493
cte (email.headerregistry.ContentTransferEncoding attribute), 1041
cte_type (email.policy.Policy attribute), 1031
ctermid() (in module os), 542
ctime() (datetime.date method), 182
ctime() (datetime.datetime method), 190
ctime() (in module time), 602
ctrl() (in module curses.ascii), 706
CTRL_BREAK_EVENT (in module signal), 1004
CTRL_C_EVENT (in module signal), 1003
ctypes (module), 717
curdir (in module os), 586
currency() (in module locale), 1354
current() (tkinter.ttk.Combobox method), 1419
current_process() (in module multiprocessing), 775

current_task() (asyncio.Task class method), 855
current_task() (in module asyncio), 853
current_thread() (in module threading), 751
CurrentByteIndex (xml.parsers.expat.xmlparser attribute), 1165
CurrentColumnName
 (xml.parsers.expat.xmlparser attribute), 1165
currentframe() (in module inspect), 1739
CurrentLineNumber (xml.parsers.expat.xmlparser attribute), 1165
curs_set() (in module curses), 686
curses (module), 685
curses.ascii (module), 704
curses.panel (module), 707
curses.textpad (module), 703
Cursor (class in sqlite3), 447
cursor() (sqlite3.Connection method), 441
cursyncup() (curses.window method), 694
Cut, 1442
cwd() (ftplib.FTP method), 1233
cwd() (pathlib.Path class method), 378
cycle() (in module itertools), 342
Cyclic Redundancy Check, 460

D

-d destdir
 compileall command line option, 1803
D_FMT (in module locale), 1352
D_T_FMT (in module locale), 1352
daemon (multiprocessing.Process attribute), 771
daemon (threading.Thread attribute), 754
data
 packing binary, 151
 tabular, 493
Data (class in plistlib), 523
data (collections.UserDict attribute), 226
data (collections.UserList attribute), 227
data (collections.UserString attribute), 227
data (select.kevent attribute), 992
data (selectors.SelectorKey attribute), 993
data (urllib.request.Request attribute), 1198
data (xml.dom.Comment attribute), 1141
data (xml.dom.ProcessingInstruction attribute), 1142
data (xml.dom.Text attribute), 1141
data (xmlrpc.client.Binary attribute), 1296
data() (xml.etree.ElementTree.TreeBuilder method), 1131
data_open() (urllib.request.DataHandler method), 1204
data_received() (asyncio.Protocol method), 904
database
 Unicode, 142
DatabaseError, 452
databases, 436
dataclass() (in module dataclasses), 1688
dataclasses (module), 1687
datagram_received() (asyncio DatagramProtocol method), 905
DatagramHandler (class in logging.handlers), 678
DatagramProtocol (class in asyncio), 903
DatagramRequestHandler (class in socketserver), 1270
DatagramTransport (class in asyncio), 899
DataHandler (class in urllib.request), 1197
date (class in datetime), 179
date() (datetime.datetime method), 186
date() (nntplib.NNTP method), 1249
date_time (zipfile.ZipInfo attribute), 480
date_time_string() (http.server.BaseHTTPRequestHandler method), 1278
DateHeader (class in email.headerregistry), 1039
datetime (class in datetime), 183
DateTime (class in xmlrpclib), 1295
datetime (email.headerregistry.DateHeader attribute), 1039
datetime (module), 175
day (datetime.date attribute), 180
day (datetime.datetime attribute), 185
day_abbr (in module calendar), 210
day_name (in module calendar), 210
daylight (in module time), 609
Daylight Saving Time, 601
DbfilenameShelf (class in shelve), 431
dbm (module), 433
dbm.dumb (module), 436
dbm.gnu
 module, 430
dbm.gnu (module), 434
dbm.ndbm
 module, 430
dbm.ndbm (module), 436
dcgettext() (in module locale), 1356
debug (imaplib.IMAP4 attribute), 1242
DEBUG (in module re), 114
debug (shlex.shlex attribute), 1400
debug (zipfile.ZipFile attribute), 478
debug() (in module doctest), 1490
debug() (in module logging), 657
debug() (logging.Logger method), 647
debug() (pipes.Template method), 1856
debug() (unittest.TestCase method), 1503
debug() (unittest.TestSuite method), 1512
DEBUG_BYTECODE_SUFFIXES (in module importlib.machinery), 1770
DEBUG_COLLECTABLE (in module gc), 1726
DEBUG_LEAK (in module gc), 1726

DEBUG_SAVEALL (in module gc), 1726
 debug_src() (in module doctest), 1490
 DEBUG_STATS (in module gc), 1726
 DEBUG_UNCOLLECTABLE (in module gc), 1726
 debugger, 1441, 1666, 1672
 configuration file, 1610
 debugging, 1607
 CGI, 1181
 DebuggingServer (class in smtpd), 1258
 debuglevel (http.client.HTTPResponse attribute), 1227
 DebugRunner (class in doctest), 1491
 Decimal (class in decimal), 298
 decimal (module), 293
 decimal() (in module unicodedata), 142
 DecimalException (class in decimal), 312
 decode
 Codecs, 156
 decode (codecs.CodecInfo attribute), 157
 decode() (bytearray method), 56
 decode() (bytes method), 56
 decode() (codecs.Codec method), 161
 decode() (codecs.IncrementalDecoder method), 163
 decode() (in module base64), 1105
 decode() (in module codecs), 157
 decode() (in module quopri), 1109
 decode() (in module uu), 1110
 decode() (json.JSONDecoder method), 1077
 decode() (xmlrpc.client.Binary method), 1296
 decode() (xmlrpc.client.DateTime method), 1295
 decode_header() (in module email.header), 1065
 decode_header() (in module nntplib), 1249
 decode_params() (in module email.utils), 1071
 decode_rfc2231() (in module email.utils), 1071
 decode_source() (in module importlib.util), 1775
 decodebytes() (in module base64), 1105
 DecodedGenerator (class in email.generator), 1028
 decodestring() (in module base64), 1106
 decodestring() (in module quopri), 1109
 decomposition() (in module unicodedata), 143
 decompress() (bz2.BZ2Decompressor method), 467
 decompress() (in module bz2), 468
 decompress() (in module gzip), 464
 decompress() (in module lzma), 471
 decompress() (in module zlib), 460
 decompress() (lzma.LZMADecompressor method), 471
 decompress() (zlib.Decompress method), 462
 decompressobj() (in module zlib), 461
 decorator, 1901
 DEDENT (in module token), 1794
 dedent() (in module textwrap), 139
 deepcopy() (in module copy), 253
 def_prog_mode() (in module curses), 686
 def_shell_mode() (in module curses), 686
 default (in module email.policy), 1035
 DEFAULT (in module unittest.mock), 1550
 default (inspect.Parameter attribute), 1733
 default (optparse.Option attribute), 1876
 default() (cmd.Cmd method), 1393
 default() (json.JSONEncoder method), 1078
 DEFAULT_BUFFER_SIZE (in module io), 589
 default_bufsize (in module xml.dom.pulldom), 1150
 default_exception_handler() (asyncio.loop method), 888
 default_factory (collections.defaultdict attribute), 220
 DEFAULT_FORMAT (in module tarfile), 484
 DEFAULT_IGNORES (in module filecmp), 398
 default_open() (urllib.request.BaseHandler method), 1200
 DEFAULT_PROTOCOL (in module pickle), 417
 default_timer() (in module timeit), 1623
 DefaultContext (class in decimal), 306
 DefaultCookiePolicy (class in http.cookiejar), 1284
 defaultdict (class in collections), 219
 DefaultDict (class in typing), 1461
 DefaultEventLoopPolicy (class in asyncio), 913
 DefaultHandler() (xml.parsers.expat.xmlparser method), 1167
 DefaultHandlerExpand()
 (xml.parsers.expat.xmlparser method), 1167
 defaults() (configparser.ConfigParser method), 513
 DefaultSelector (class in selectors), 994
 defaultTestLoader (in module unittest), 1517
 defaultTestResult() (unittest.TestCase method), 1510
 defects (email.headerregistry.BaseHeader attribute), 1038
 defects (email.message.EmailMessage attribute), 1022
 defects (email.message.Message attribute), 1060
 defpath (in module os), 586
 DefragResult (class in urllib.parse), 1215
 DefragResultBytes (class in urllib.parse), 1215
 degrees() (in module math), 288
 degrees() (in module turtle), 1368
 del
 statement, 39, 77
 del_param() (email.message.EmailMessage method), 1018
 del_param() (email.message.Message method), 1058
 delattr() (built-in function), 8
 delay() (in module turtle), 1380
 delay_output() (in module curses), 686
 delayload (http.cookiejar.FileCookieJar attribute), 1287

delch() (`curses.window` method), 694
dele() (`poplib.POP3` method), 1235
delete() (`ftplib.FTP` method), 1233
delete() (`imaplib.IMAP4` method), 1239
delete() (`tkinter.ttk.Treeview` method), 1427
`DELETE_ATTR` (opcode), 1814
`DELETE_DEREF` (opcode), 1817
`DELETE_FAST` (opcode), 1816
`DELETE_GLOBAL` (opcode), 1814
`DELETE_NAME` (opcode), 1814
`DELETE_SUBSCR` (opcode), 1812
deleteacl() (`imaplib.IMAP4` method), 1239
deletefilehandler() (`tkinter.Widget.tk` method), 1414
DeleteKey() (in module `winreg`), 1835
DeleteKeyEx() (in module `winreg`), 1835
deleteln() (`curses.window` method), 694
deleteMe() (`bdb.Breakpoint` method), 1601
DeleteValue() (in module `winreg`), 1836
delimiter (`csv.Dialect` attribute), 497
delitem() (in module `operator`), 362
deliver_challenge() (in module `multiprocessing.connection`), 793
delocalize() (in module `locale`), 1354
demo_app() (in module `wsgiref.simple_server`), 1187
denominator (`fractions.Fraction` attribute), 322
denominator (`numbers.Rational` attribute), 282
DeprecationWarning, 94
deque (class in `collections`), 216
Deque (class in `typing`), 1460
dequeue() (`logging.handlers.QueueListener` method), 684
DER_cert_to_PEM_cert() (in module `ssl`), 955
derwin() (`curses.window` method), 694
DES
 cipher, 1848
description (`sqlite3.Cursor` attribute), 450
description() (`nntplib.NNTP` method), 1247
descriptions() (`nntplib.NNTP` method), 1247
descriptor, 1902
dest (`optparse.Option` attribute), 1876
detach() (`io.BufferedIOBase` method), 593
detach() (`io.TextIOBase` method), 597
detach() (`socket.socket` method), 939
detach() (`tcl.Tk.Tk` method), 1427
detach() (`weakref.finalize` method), 244
Detach() (`winreg.PyHKEY` method), 1842
DETACHED_PROCESS (in module `subprocess`), 825
–details
 inspect command line option, 1742
detect_api_mismatch() (in module `test.support`), 1596
detect_encoding() (in module `tokenize`), 1796
deterministic profiling, 1614
device_encoding() (in module `os`), 548
devnull (in module `os`), 586
DEVNULL (in module `subprocess`), 815
devpoll() (in module `select`), 985
DevpollSelector (class in `selectors`), 994
dgettext() (in module `gettext`), 1342
dgettext() (in module `locale`), 1356
Dialect (class in `csv`), 496
dialect (`csv.csvreader` attribute), 498
dialect (`csv.csvwriter` attribute), 498
Dialog (class in `msilib`), 1831
dict (2to3 fixer), 1581
dict (built-in class), 77
Dict (class in `typing`), 1461
dict() (multiprocessing.managers.SyncManager method), 786
dictConfig() (in module `logging.config`), 661
dictionary, 1902
 object, 77
 type, operations on, 77
 dictionary view, 1902
DictReader (class in `csv`), 495
DictWriter (class in `csv`), 495
diff_bytes() (in module `difflib`), 132
diff_files (`filecmp.dircmp` attribute), 398
Differ (class in `difflib`), 128, 136
difference() (`frozenset` method), 75
difference_update() (`frozenset` method), 76
difflib (module), 128
digest() (`hashlib.hash` method), 527
digest() (`hashlib.shake` method), 527
digest() (`hmac.HMAC` method), 536
digest() (in module `hmac`), 536
digest_size (`hmac.HMAC` attribute), 536
digit() (in module `unicodedata`), 143
digits (in module `string`), 97
dir() (built-in function), 9
dir() (`ftplib.FTP` method), 1232
dircmp (class in `filecmp`), 397
directory
 changing, 558
 creating, 562
 deleting, 408, 564
 site-packages, 1742
 traversal, 572, 573
 walking, 572, 573
directory ...
 compileall command line option, 1803
Directory (class in `msilib`), 1830
directory (`http.server.SimpleHTTPRequestHandler` attribute), 1278
DirEntry (class in `os`), 565
DirList (class in `tcl.Tk`), 1435
dirname() (in module `os.path`), 386

DirSelectBox (class in `tkinter.tix`), 1435
 DirSelectDialog (class in `tkinter.tix`), 1435
 DirsOnSysPath (class in `test.support`), 1598
 DirTree (class in `tkinter.tix`), 1435
 dis (module), 1806
 dis() (`dis.Bytecode` method), 1807
 dis() (in module `dis`), 1808
 dis() (in module `pickletools`), 1820
 disable (`pdb` command), 1611
 disable() (`bdb.Breakpoint` method), 1601
 disable() (in module `faulthandler`), 1606
 disable() (in module `gc`), 1723
 disable() (in module `logging`), 658
 disable() (`profile.Profile` method), 1617
 disable_faulthandler() (in module `test.support`), 1592
 disable_gc() (in module `test.support`), 1592
 disable_interspersed_args() (`optparse.OptionParser` method), 1881
 DisableReflectionKey() (in module `winreg`), 1839
 disassemble() (in module `dis`), 1808
 discard (`http.cookiejar.Cookie` attribute), 1291
 discard() (`frozenset` method), 76
 discard() (`mailbox.Mailbox` method), 1084
 discard() (`mailbox.MH` method), 1089
 discard_buffers() (`asynchat.async_chat` method), 1001
 disco() (in module `dis`), 1808
 discover() (`unittest.TestLoader` method), 1513
 disk_usage() (in module `shutil`), 409
 dispatch_call() (`bdb.Bdb` method), 1603
 dispatch_exception() (`bdb.Bdb` method), 1603
 dispatch_line() (`bdb.Bdb` method), 1602
 dispatch_return() (`bdb.Bdb` method), 1603
 dispatch_table (`pickle.Pickler` attribute), 419
 dispatcher (class in `asyncore`), 996
 dispatcher_with_send (class in `asyncore`), 998
 display (`pdb` command), 1613
 display_name (`email.headerregistry.Address` attribute), 1042
 display_name (`email.headerregistry.Group` attribute), 1042
 displayhook() (in module `sys`), 1661
 dist() (in module `platform`), 711
 distance() (in module `turtle`), 1367
 distb() (in module `dis`), 1808
 distutils (module), 1641
 divide() (`decimal.Context` method), 308
 divide_int() (`decimal.Context` method), 308
 DivisionByZero (class in `decimal`), 312
 divmod() (built-in function), 9
 divmod() (`decimal.Context` method), 308
 DllCanUnloadNow() (in module `ctypes`), 743
 DllGetClassObject() (in module `ctypes`), 743
 dllhandle (in module `sys`), 1660
 dngettext() (in module `gettext`), 1342
 do_clear() (`bdb.Bdb` method), 1603
 do_command() (`curses.textpad.Textbox` method), 703
 do_GET() (`http.server.SimpleHTTPRequestHandler` method), 1278
 do_handshake() (`ssl.SSLSocket` method), 964
 do_HEAD() (`http.server.SimpleHTTPRequestHandler` method), 1278
 do_POST() (`http.server.CGIHTTPRequestHandler` method), 1280
 doc (`json.JSONDecodeError` attribute), 1079
 doc_header (`cmd.Cmd` attribute), 1394
 DocCGIXMLRPCRequestHandler (class in `xmlrpc.server`), 1306
 DocFileSuite() (in module `doctest`), 1482
 doCleanups() (`unittest.TestCase` method), 1510
 docmd() (`smtplib.SMTP` method), 1252
 docstring, 1902
 docstring (`doctest.DocTest` attribute), 1485
 DocTest (class in `doctest`), 1484
 doctest (module), 1468
 DocTestFailure, 1491
 DocTestFinder (class in `doctest`), 1486
 DocTestParser (class in `doctest`), 1486
 DocTestRunner (class in `doctest`), 1487
 DocTestSuite() (in module `doctest`), 1483
 doctype() (`xml.etree.ElementTree.TreeBuilder` method), 1131
 doctype() (`xml.etree.ElementTree.XMLParser` method), 1132
 documentation
 generation, 1467
 online, 1467
 documentElement (`xml.dom.Document` attribute), 1139
 DocXMLRPCRequestHandler (class in `xmlrpc.server`), 1306
 DocXMLRPCServer (class in `xmlrpclib`), 1305
 domain (`email.headerregistry.Address` attribute), 1042
 domain (`tracemalloc.DomainFilter` attribute), 1636
 domain (`tracemalloc.Filter` attribute), 1636
 domain (`tracemalloc.Trace` attribute), 1638
 domain_initial_dot (`http.cookiejar.Cookie` attribute), 1291
 domain_return_ok() (`http.cookiejar.CookiePolicy` method), 1288
 domain_specified (`http.cookiejar.Cookie` attribute), 1291
 DomainFilter (class in `tracemalloc`), 1635
 DomainLiberal (`http.cookiejar.DefaultCookiePolicy` attribute), 1290

DomainRFC2965Match
 ([http.cookiejar.DefaultCookiePolicy](#) attribute), [1290](#)

DomainStrict ([http.cookiejar.DefaultCookiePolicy](#) attribute), [1290](#)

DomainStrictNoDots ([http.cookiejar.DefaultCookiePolicy](#) attribute), [1290](#)

DomainStrictNonDomain
 ([http.cookiejar.DefaultCookiePolicy](#) attribute), [1290](#)

DOMEVENTStream (class in [xml.dom.pulldom](#)), [1150](#)

DOMException, [1142](#)

DomstringSizeErr, [1142](#)

done() ([asyncio.Future](#) method), [896](#)

done() ([asyncio.Task](#) method), [854](#)

done() ([concurrent.futures.Future](#) method), [811](#)

done() (in module [turtle](#)), [1382](#)

done() ([xdrlib.Unpacker](#) method), [520](#)

DONT_ACCEPT_BLANKLINE (in module [doctest](#)), [1476](#)

DONT_ACCEPT_TRUE_FOR_1 (in module [doctest](#)), [1476](#)

dont_write bytecode (in module [sys](#)), [1661](#)

doRollover() ([logging.handlers.RotatingFileHandler](#) method), [675](#)

doRollover() ([logging.handlers.TimedRotatingFileHandler](#) method), [677](#)

DOT (in module [token](#)), [1794](#)

dot() (in module [turtle](#)), [1365](#)

DOTALL (in module [re](#)), [115](#)

doublequote ([csv.Dialect](#) attribute), [497](#)

DOUBLESLASH (in module [token](#)), [1794](#)

DOUBLESLASHEQUAL (in module [token](#)), [1794](#)

DOUBLESTAR (in module [token](#)), [1794](#)

DOUBLESTAREQUAL (in module [token](#)), [1794](#)

doupdate() (in module [curses](#)), [687](#)

down ([pdb](#) command), [1610](#)

down() (in module [turtle](#)), [1368](#)

drain() ([asyncio.StreamWriter](#) method), [859](#)

drop whitespace ([textwrap.TextWrapper](#) attribute), [141](#)

dropwhile() (in module [itertools](#)), [342](#)

dst() ([datetime.datetime](#) method), [188](#)

dst() ([datetime.time](#) method), [194](#)

dst() ([datetime.timezone](#) method), [203](#)

dst() ([datetime.tzinfo](#) method), [196](#)

DTDHandler (class in [xml.sax.handler](#)), [1153](#)

duck-typing, [1902](#)

DumbWriter (class in [formatter](#)), [1824](#)

dummy_threading (module), [838](#)

dump() (in module [ast](#)), [1791](#)

dump() (in module [json](#)), [1074](#)

dump() (in module [marshal](#)), [432](#)

dump() (in module [pickle](#)), [417](#)

dump() (in module [plistlib](#)), [522](#)

dump() (in module [xml.etree.ElementTree](#)), [1125](#)

dump() ([pickle.Pickler](#) method), [418](#)

dump() ([tracemalloc.Snapshot](#) method), [1637](#)

dump_stats() ([profile.Profile](#) method), [1617](#)

dump_stats() ([pstools.Stats](#) method), [1618](#)

dump_traceback() (in module [faulthandler](#)), [1606](#)

dump_traceback_later() (in module [faulthandler](#)), [1606](#)

dumps() (in module [json](#)), [1075](#)

dumps() (in module [marshal](#)), [432](#)

dumps() (in module [pickle](#)), [417](#)

dumps() (in module [plistlib](#)), [523](#)

dumps() (in module [xmlrpclib](#)), [1299](#)

dup() (in module [os](#)), [548](#)

dup() ([socket.socket](#) method), [939](#)

dup2() (in module [os](#)), [548](#)

DUP_TOP (opcode), [1810](#)

DUP_TOP_TWO (opcode), [1810](#)

DuplicateOptionError, [517](#)

DuplicateSectionError, [517](#)

dwFlags ([subprocess.STARTUPINFO](#) attribute), [823](#)

DynamicClassAttribute() (in module [types](#)), [252](#)

E

e (in module [cmath](#)), [292](#)

e (in module [math](#)), [289](#)

-e <tarfile> [<output_dir>]
 tarfile command line option, [489](#)

-e <zipfile> <output_dir>
 zipfile command line option, [481](#)

-e, --exact
 tokenize command line option, [1797](#)

E2BIG (in module [errno](#)), [712](#)

EACCES (in module [errno](#)), [712](#)

EADDRINUSE (in module [errno](#)), [716](#)

EADDRNOTAVAIL (in module [errno](#)), [716](#)

EADV (in module [errno](#)), [714](#)

EAFNOSUPPORT (in module [errno](#)), [716](#)

EAFTP, [1902](#)

EAGAIN (in module [errno](#)), [712](#)

EALREADY (in module [errno](#)), [716](#)

east_asian_width() (in module [unicodedata](#)), [143](#)

EBADE (in module [errno](#)), [714](#)

EBADF (in module [errno](#)), [712](#)

EBADFD (in module [errno](#)), [715](#)

EBADMSG (in module [errno](#)), [715](#)

EBADR (in module [errno](#)), [714](#)

EBADRQC (in module [errno](#)), [714](#)

EBADSLT (in module [errno](#)), [714](#)

EBFONT (in module [errno](#)), [714](#)

EBUSY (in module [errno](#)), [712](#)

ECHILD (in module [errno](#)), [712](#)

echo() (in module [curses](#)), [687](#)

echochar() (curses.window method), 694
 ECHRNG (in module errno), 713
 ECOMM (in module errno), 714
 ECONNABORTED (in module errno), 716
 ECONNREFUSED (in module errno), 716
 ECONNRESET (in module errno), 716
 EDEADLK (in module errno), 713
 EDEADLOCK (in module errno), 714
 EDESTADDRREQ (in module errno), 715
 edit() (curses.textpad.Textbox method), 703
 EDOM (in module errno), 713
 EDOTDOT (in module errno), 715
 EDQUOT (in module errno), 717
 EEXIST (in module errno), 712
 EFAULT (in module errno), 712
 EFBIG (in module errno), 712
 effective() (in module bdb), 1605
 ehlo() (smtplib.SMTP method), 1252
 ehlo_or_helo_if_needed() (smtplib.SMTP method), 1253
 EHOSTDOWN (in module errno), 716
 EHOSTUNREACH (in module errno), 716
 EIDRM (in module errno), 713
 EILSEQ (in module errno), 715
 EINPROGRESS (in module errno), 716
 EINTR (in module errno), 711
 EINVAL (in module errno), 712
 EIO (in module errno), 712
 EISCONN (in module errno), 716
 EISDIR (in module errno), 712
 EISNAM (in module errno), 717
 EL2HLT (in module errno), 714
 EL2NSYNC (in module errno), 713
 EL3HLT (in module errno), 713
 EL3RST (in module errno), 713
 Element (class in xml.etree.ElementTree), 1127
 element_create() (tkinter.ttk.Style method), 1431
 element_names() (tkinter.ttk.Style method), 1432
 element_options() (tkinter.ttk.Style method), 1432
 ElementDeclHandler() (xml.parsers.expat.xmlparser method), 1166
 elements() (collections.Counter method), 214
 ElementTree (class in xml.etree.ElementTree), 1129
 ELIBACC (in module errno), 715
 ELIBBAD (in module errno), 715
 ELIBEXEC (in module errno), 715
 ELIBMAX (in module errno), 715
 ELIBSCN (in module errno), 715
 Ellinghouse, Lance, 1110
 Ellipsis (built-in variable), 27
 ELLIPSIS (in module doctest), 1476
 ELLIPSIS (in module token), 1794
 ELNRNG (in module errno), 713
 ELOOP (in module errno), 713
 email (module), 1013
 email.charset (module), 1066
 email.contentmanager (module), 1042
 email.encoders (module), 1068
 email.errors (module), 1036
 email.generator (module), 1026
 email.header (module), 1063
 email.headerregistry (module), 1037
 email.iterators (module), 1071
 EmailMessage (class in email.message), 1015
 email.message (module), 1014, 1052
 email.mime (module), 1061
 email.parser (module), 1022
 EmailPolicy (class in email.policy), 1033
 email.policy (module), 1029
 email.utils (module), 1069
 EMFILE (in module errno), 712
 emit() (logging.FileHandler method), 673
 emit() (logging.Handler method), 651
 emit() (logging.handlers.BufferingHandler method), 681
 emit() (logging.handlers.DatagramHandler method), 678
 emit() (logging.handlers.HTTPHandler method), 682
 emit() (logging.handlers.NTEventLogHandler method), 680
 emit() (logging.handlers.QueueHandler method), 683
 emit() (logging.handlers.RotatingFileHandler method), 675
 emit() (logging.handlers.SMTPHandler method), 681
 emit() (logging.handlers.SocketHandler method), 677
 emit() (logging.handlers.SysLogHandler method), 678
 emit() (logging.handlers.TimedRotatingFileHandler method), 677
 emit() (logging.handlers.WatchedFileHandler method), 674
 emit() (logging.NullHandler method), 673
 emit() (logging.StreamHandler method), 672
 EMLINK (in module errno), 713
 Empty, 833
 empty (inspect.Parameter attribute), 1733
 empty (inspect.Signature attribute), 1732
 empty() (asyncio.Queue method), 871
 empty() (multiprocessing.Queue method), 774
 empty() (multiprocessing.SimpleQueue method), 775
 empty() (queue.Queue method), 834
 empty() (queue.SimpleQueue method), 835
 empty() (sched.scheduler method), 832
 EMPTY_NAMESPACE (in module xml.dom), 1135
 emptyline() (cmd.Cmd method), 1393
 EMSGSIZE (in module errno), 715
 EMULTIHOP (in module errno), 715
 enable (pdb command), 1611

enable() (bdb.Breakpoint method), 1601
enable() (imaplib.IMAP4 method), 1239
enable() (in module cgi), 1182
enable() (in module faulthandler), 1606
enable() (in module gc), 1723
enable() (profile.Profile method), 1617
enable_callback_tracebacks() (in module sqlite3), 441
enable_interspersed_args() (optparse.OptionParser method), 1881
enable_load_extension() (sqlite3.Connection method), 444
enable_traversal() (tkinter.ttk.Notebook method), 1422
ENABLE_USER_SITE (in module site), 1744
EnableReflectionKey() (in module winreg), 1839
ENAMETOOLONG (in module errno), 713
ENAVAIL (in module errno), 717
enclose() (curses.window method), 694
encode
 Codecs, 156
 encode (codecs.CodecInfo attribute), 157
 encode() (codecs.Codec method), 161
 encode() (codecs.IncrementalEncoder method), 162
 encode() (email.header.Header method), 1065
 encode() (in module base64), 1106
 encode() (in module codecs), 156
 encode() (in module quopri), 1109
 encode() (in module uu), 1110
 encode() (json.JSONEncoder method), 1078
 encode() (str method), 45
 encode() (xmlrpc.client.Binary method), 1296
 encode() (xmlrpc.client.DateTime method), 1295
 encode_7or8bit() (in module email.encoders), 1068
 encode_base64() (in module email.encoders), 1068
 encode_noop() (in module email.encoders), 1069
 encode_quopri() (in module email.encoders), 1068
 encode_rfc2231() (in module email.utils), 1071
 encodebytes() (in module base64), 1106
EncodedFile() (in module codecs), 158
encodePriority() (logging.handlers.SysLogHandler method), 679
encodeestring() (in module base64), 1106
encodeestring() (in module quopri), 1109
encoding
 base64, 1103
 quoted-printable, 1109
encoding (curses.window attribute), 694
ENCODING (in module tarfile), 483
ENCODING (in module token), 1795
encoding (io.TextIOWrapper attribute), 597
encoding (UnicodeError attribute), 92
encodings_map (in module mimetypes), 1102
encodings_map (mimetypes.MimeTypes attribute), 1102
encodings.idna (module), 172
encodings.mbcs (module), 173
encodings.utf_8_sig (module), 173
end (UnicodeError attribute), 92
end() (re.Match method), 121
end() (xml.etree.ElementTree.TreeBuilder method), 1131
end_fill() (in module turtle), 1372
END_FINALLY (opcode), 1813
end_headers() (http.server.BaseHTTPRequestHandler method), 1277
end_paragraph() (formatter.formatter method), 1821
end_poly() (in module turtle), 1377
EndCdataSectionHandler()
 (xml.parsers.expat.xmlparser method), 1167
EndDoctypeDeclHandler()
 (xml.parsers.expat.xmlparser method), 1166
endDocument() (xml.sax.handler.ContentHandler method), 1155
endElement() (xml.sax.handler.ContentHandler method), 1156
EndElementHandler() (xml.parsers.expat.xmlparser method), 1166
endElementNS() (xml.sax.handler.ContentHandler method), 1156
endheaders() (http.client.HTTPConnection method), 1226
ENDMARKER (in module token), 1794
EndNamespaceDeclHandler()
 (xml.parsers.expat.xmlparser method), 1167
endpos (re.Match attribute), 122
endPrefixMapping() (xml.sax.handler.ContentHandler method), 1155
endswith() (bytearray method), 57
endswith() (bytes method), 57
endswith() (str method), 45
endwin() (in module curses), 687
ENETDOWN (in module errno), 716
ENETRESET (in module errno), 716
ENETUNREACH (in module errno), 716
ENFILE (in module errno), 712
ENOANO (in module errno), 714
ENOBUFS (in module errno), 716
ENOCSI (in module errno), 714
ENODATA (in module errno), 714
ENODEV (in module errno), 712
ENOENT (in module errno), 711
ENOEXEC (in module errno), 712

ENOLCK (in module `errno`), 713
 ENOLINK (in module `errno`), 714
 ENOMEM (in module `errno`), 712
 ENOMSG (in module `errno`), 713
 ENONET (in module `errno`), 714
 ENOPKG (in module `errno`), 714
 ENOPROTOOPT (in module `errno`), 715
 ENOSPC (in module `errno`), 713
 ENOSR (in module `errno`), 714
 ENOSTR (in module `errno`), 714
 ENOSYS (in module `errno`), 713
 ENOTBLK (in module `errno`), 712
 ENOTCONN (in module `errno`), 716
 ENOTDIR (in module `errno`), 712
 ENOTEMPTY (in module `errno`), 713
 ENOTNAM (in module `errno`), 717
 ENOTSOCK (in module `errno`), 715
 ENOTTY (in module `errno`), 712
 ENOTUNIQ (in module `errno`), 715
`enqueue()` (`logging.handlers.QueueHandler` method), 683
`enqueue_sentinel()` (`logging.handlers.QueueListener` method), 684
`ensure_directories()` (`venv.EnvBuilder` method), 1647
`ensure_future()` (in module `asyncio`), 895
`ensurepip` (module), 1641
`enter()` (`sched.scheduler` method), 832
`enter_async_context()` (`contextlib.AsyncExitStack` method), 1702
`enter_context()` (`contextlib.ExitStack` method), 1701
`enterabs()` (`sched.scheduler` method), 832
`entities` (`xml.dom.DocumentType` attribute), 1139
`EntityDeclHandler()` (`xml.parsers.expat.xmlparser` method), 1166
`entitydefs` (in module `html.entities`), 1116
`EntityResolver` (class in `xml.sax.handler`), 1153
`Enum` (class in `enum`), 261
`enum` (module), 261
`enum_certificates()` (in module `ssl`), 956
`enum_crls()` (in module `ssl`), 956
`enumerate()` (built-in function), 10
`enumerate()` (in module `threading`), 751
`EnumKey()` (in module `winreg`), 1836
`EnumValue()` (in module `winreg`), 1836
`EnvBuilder` (class in `venv`), 1646
`environ` (in module `os`), 542
`environ` (in module `posix`), 1846
`environb` (in module `os`), 542
environment variable
 AUDIODEV, 1335
 BROWSER, 1173, 1174
 COLS, 691
 COLUMNS, 692
 COMSPEC, 581, 818
 HOME, 386
 HOMEDRIVE, 386
 HOMEPATH, 386
`http_proxy`, 1194, 1206
 IDLESTARTUP, 1445
 KDEDIR, 1175
 LANG, 1341, 1343, 1350, 1353
 LANGUAGE, 1341, 1343
 LC_ALL, 1341, 1343
 LC_MESSAGES, 1341, 1343
 LINES, 687, 691, 692
 LNAME, 685
 LOGNAME, 544, 685
 MIXERDEV, 1336
`no_proxy`, 1196
 PAGER, 1468
 PATH, 576, 580, 586, 1173, 1180, 1182
 POSIXLY_CORRECT, 643
 PYTHON_DOM, 1135
 PYTHONASYNCIODEBUG, 889, 924
 PYTHONBREAKPOINT, 1660
 PYTHONDEVMODE, 1599
 PYTHONDOKCS, 1468
 PYTHONDONTWRITEBYTECODE, 1661
 PYTHONFAULTHANDLER, 1605
 PYTHONHOME, 1599
 PYTHONIOENCODING, 1675
 PYTHONLEGACYWINDOWSFSENCODING, 1674
 PYTHONNOUSERSITE, 1744
 PYTHONPATH, 1180, 1599, 1670
 PYTHONSTARTUP, 149, 1445, 1669, 1743
 PYTHONTRACEMALLOC, 1630, 1635
 PYTHONUSERBASE, 1744
 PYTHONUSERSITE, 1599
 PYTHONWARNINGS, 1683
 SOURCE_DATE_EPOCH, 1802, 1804
 SSL_CERT_FILE, 985
 SSL_CERT_PATH, 985
 SystemRoot, 820
 TEMP, 401
 TERM, 690, 691
 TIX_LIBRARY, 1434
 TMP, 401
 TMPDIR, 401
 TZ, 607, 608
 USER, 685
 USERNAME, 544, 685
 USERPROFILE, 386
environment variables
 deleting, 547
 setting, 545
`EnvironmentError`, 92

Environments
 virtual, 1643

EnvironmentVarGuard (class in `test.support`), 1597

ENXIO (in module `errno`), 712

eof (`bz2.BZ2Decompressor` attribute), 467

eof (`lzma.LZMADecompressor` attribute), 471

eof (`shlex.shlex` attribute), 1400

eof (`ssl.MemoryBIO` attribute), 982

eof (`zlib.Decompress` attribute), 462

eof_received() (`asyncio.BufferedProtocol` method), 905

eof_received() (`asyncio.Protocol` method), 904

EOFError, 88

EOPNOTSUPP (in module `errno`), 716

EOVERFLOW (in module `errno`), 715

EPERM (in module `errno`), 711

EPFNOSUPPORT (in module `errno`), 716

epilogue (`email.message.EmailMessage` attribute), 1022

epilogue (`email.message.Message` attribute), 1060

EPIPE (in module `errno`), 713

epoch, 600

epoll() (in module `select`), 986

EpollSelector (class in `selectors`), 994

EPROTO (in module `errno`), 714

EPROTONOSUPPORT (in module `errno`), 715

EPROTOTYPE (in module `errno`), 715

eq() (in module `operator`), 360

EQEQUAL (in module `token`), 1794

EQUAL (in module `token`), 1794

ERA (in module `locale`), 1353

ERA_D_FMT (in module `locale`), 1353

ERA_D_T_FMT (in module `locale`), 1353

ERA_T_FMT (in module `locale`), 1353

ERANGE (in module `errno`), 713

erase() (`curses.window` method), 694

erasechar() (in module `curses`), 687

EREMCHG (in module `errno`), 715

EREMOTE (in module `errno`), 714

EREMOTEIO (in module `errno`), 717

ERESTART (in module `errno`), 715

erf() (in module `math`), 288

erfc() (in module `math`), 288

EROFS (in module `errno`), 713

ERR (in module `curses`), 698

errcheck (`ctypes._FuncPtr` attribute), 740

errcode (`xmlrpc.client.ProtocolError` attribute), 1297

errmsg (`xmlrpc.client.ProtocolError` attribute), 1298

errno
 module, 89

errno (module), 711

errno (OSError attribute), 90

Error, 410, 452, 497, 517, 521, 1099, 1107, 1109, 1110, 1173, 1327, 1330, 1349

error, 118, 151, 253, 433, 434, 436, 459, 541, 644, 686, 836, 930, 985, 1163, 1321, 1857, 1861

error() (`argparse.ArgumentParser` method), 641

error() (in module `logging`), 658

error() (`logging.Logger` method), 648

error() (`urllib.request.OpenerDirector` method), 1200

error() (`xml.sax.handler.ErrorHandler` method), 1157

error_body (`wsgiref.handlers.BaseHandler` attribute), 1191

error_content_type (`http.server.BaseHTTPRequestHandler` attribute), 1276

error_headers (`wsgiref.handlers.BaseHandler` attribute), 1191

error_leader() (`shlex.shlex` method), 1399

error_message_format
 (`http.server.BaseHTTPRequestHandler` attribute), 1276

error_output() (`wsgiref.handlers.BaseHandler` method), 1191

error_perm, 1230

error_proto, 1230, 1234

error_received() (`asyncio.DatagramProtocol` method), 905

error_reply, 1230

error_status (`wsgiref.handlers.BaseHandler` attribute), 1191

error_temp, 1230

ErrorByteIndex (`xml.parsers.expat.xmlparser` attribute), 1165

errorcode (in module `errno`), 711

ErrorCode (`xml.parsers.expat.xmlparser` attribute), 1165

ErrorColumnNumber (`xml.parsers.expat.xmlparser` attribute), 1165

ErrorHandler (class in `xml.sax.handler`), 1153

ErrorLineNumber (`xml.parsers.expat.xmlparser` attribute), 1165

Errors
 logging, 645

errors (`io.TextIOWrapper` attribute), 597

errors (`unittest.TestLoader` attribute), 1512

errors (`unittest.TestResult` attribute), 1515

ErrorString() (in module `xml.parsers.expat`), 1163

ERRORTOKEN (in module `token`), 1794

escape (`shlex.shlex` attribute), 1400

escape() (in module `cgi`), 1180

escape() (in module `glob`), 403

escape() (in module `html`), 1111

escape() (in module `re`), 117

escape() (in module `xml.sax.saxutils`), 1157

escapechar (`csv.Dialect` attribute), 497

escapedquotes (`shlex.shlex` attribute), 1400

ESHUTDOWN (in module `errno`), 716

ESOCKTNOSUPPORT (in module `errno`), 716

ESPIPE (in module `errno`), 713
ESRCH (in module `errno`), 711
ESRMNT (in module `errno`), 714
ESTALE (in module `errno`), 717
ESTRPIPE (in module `errno`), 715
ETIME (in module `errno`), 714
ETIMEDOUT (in module `errno`), 716
`Etiny()` (`decimal.Context` method), 307
ETOOMANYREFS (in module `errno`), 716
`Etop()` (`decimal.Context` method), 307
ETXTBSY (in module `errno`), 712
EUCLEAN (in module `errno`), 717
EUNATCH (in module `errno`), 713
EUSERS (in module `errno`), 715
`eval`
 built-in function, 83, 255, 1783
`eval()` (built-in function), 10
`Event` (class in `asyncio`), 863
`Event` (class in `multiprocessing`), 779
`Event` (class in `threading`), 760
event scheduling, 831
`event()` (`msilib.Control` method), 1831
`Event()` (`multiprocessing.managers.SyncManager` method), 786
events (`selectors.SelectorKey` attribute), 993
events (widgets), 1412
EWOULDBLOCK (in module `errno`), 713
EX_CANTCREAT (in module `os`), 577
EX_CONFIG (in module `os`), 578
EX_DATAERR (in module `os`), 577
EX_IOERR (in module `os`), 577
EX_NOHOST (in module `os`), 577
EX_NOINPUT (in module `os`), 577
EX_NOPERM (in module `os`), 578
EX_NOTFOUND (in module `os`), 578
EX_NOUSER (in module `os`), 577
EX_OK (in module `os`), 576
EX_OSERR (in module `os`), 577
EX_OFILE (in module `os`), 577
EX_PROTOCOL (in module `os`), 577
EX_SOFTWARE (in module `os`), 577
EX_TEMPFAIL (in module `os`), 577
EX_UNAVAILABLE (in module `os`), 577
EX_USAGE (in module `os`), 577
Example (class in `doctest`), 1485
example (`doctest.DocTestFailure` attribute), 1491
example (`doctest.UnexpectedException` attribute), 1491
examples (`doctest.DocTest` attribute), 1484
`exc_info` (`doctest.UnexpectedException` attribute), 1491
`exc_info()` (in module `sys`), 1662
`exc_msg` (`doctest.Example` attribute), 1485
`exc_type` (`traceback.TracebackException` attribute), 1718
`excel` (class in `csv`), 496
`excel_tab` (class in `csv`), 496
`except`
 statement, 87
`except (2to3 fixer)`, 1581
 `excepthook()` (in module `sys`), 1182, 1661
`Exception`, 88
EXCEPTION (in module `tkinter`), 1414
`exception()` (`asyncio.Future` method), 897
`exception()` (`asyncio.Task` method), 854
`exception()` (`concurrent.futures.Future` method), 812
`exception()` (in module `logging`), 658
`exception()` (`logging.Logger` method), 648
exceptions
 in CGI scripts, 1182
EXDEV (in module `errno`), 712
`exec`
 built-in function, 10, 83, 1783
`exec (2to3 fixer)`, 1581
`exec()` (built-in function), 10
`exec_module()` (importlib.abc.InspectLoader method), 1766
`exec_module()` (importlib.abc.Loader method), 1763
`exec_module()` (importlib.abc.SourceLoader method), 1768
`exec_module()` (importlib.machinery.ExtensionFileLoader method), 1773
`exec_prefix` (in module `sys`), 1662
`execfile` (2to3 fixer), 1581
`exec()` (in module `os`), 575
`execle()` (in module `os`), 575
`execlp()` (in module `os`), 575
`execlepe()` (in module `os`), 575
`executable` (in module `sys`), 1662
Executable Zip Files, 1652
`Execute()` (`msilib.View` method), 1828
`execute()` (`sqlite3.Connection` method), 442
`execute()` (`sqlite3.Cursor` method), 447
`executemany()` (`sqlite3.Connection` method), 442
`executemany()` (`sqlite3.Cursor` method), 448
`executescript()` (`sqlite3.Connection` method), 442
`executescript()` (`sqlite3.Cursor` method), 449
ExecutionLoader (class in importlib.abc), 1766
Executor (class in concurrent.futures), 807
`execv()` (in module `os`), 575
`execve()` (in module `os`), 575
`execvp()` (in module `os`), 575
`execvpe()` (in module `os`), 575
ExFileSelectBox (class in `tkinter.tix`), 1435
EXFULL (in module `errno`), 714
`exists()` (in module `os.path`), 386
`exists()` (pathlib.Path method), 378

exists() (tkinter.ttk.Treeview method), 1427
exit (built-in variable), 28
exit() (argparse.ArgumentParser method), 641
exit() (in module _thread), 836
exit() (in module sys), 1662
exitcode (multiprocessing.Process attribute), 771
exitfunc (2to3 fixer), 1581
exitonclick() (in module turtle), 1385
ExitStack (class in contextlib), 1701
exp() (decimal.Context method), 308
exp() (decimal.Decimal method), 301
exp() (in module cmath), 290
exp() (in module math), 286
expand() (re.Match method), 120
expand_tabs (textwrap.TextWrapper attribute), 141
ExpandEnvironmentStrings() (in module winreg), 1836
expandNode() (xml.dom.pulldom.DOMEVENTStream method), 1150
expandtabs() (bytearray method), 61
expandtabs() (bytes method), 61
expandtabs() (str method), 45
expanduser() (in module os.path), 386
expanduser() (pathlib.Path method), 379
expandvars() (in module os.path), 386
Expat, 1162
ExpatError, 1163
expect() (telnetlib.Telnet method), 1261
expected (asyncio.IncompleteReadError attribute), 875
expectedFailure() (in module unittest), 1500
expectedFailures (unittest.TestResult attribute), 1515
expires (http.cookiejar.Cookie attribute), 1291
exploded (ipaddress.IPv4Address attribute), 1308
exploded (ipaddress.IPv4Network attribute), 1312
exploded (ipaddress.IPv6Address attribute), 1309
exploded (ipaddress.IPv6Network attribute), 1315
expm1() (in module math), 286
expovariate() (in module random), 326
expr() (in module parser), 1782
expression, 1902
expunge() (imaplib.IMAP4 method), 1239
extend() (array.array method), 239
extend() (collections.deque method), 216
extend() (sequence method), 39
extend() (xml.etree.ElementTree.Element method), 1128
extend_path() (in module pkgutil), 1753
EXTENDED_ARG (opcode), 1818
ExtendedContext (class in decimal), 305
ExtendedInterpolation (class in configparser), 504
extendleft() (collections.deque method), 217
extension module, 1902

EXTENSION_SUFFIXES (in module importlib.machinery), 1770
ExtensionFileLoader (class in importlib.machinery), 1773
extensions_map (http.server.SimpleHTTPRequestHandler attribute), 1278
External Data Representation, 416, 519
external_attr (zipfile.ZipInfo attribute), 480
ExternalClashError, 1099
ExternalEntityParserCreate() (xml.parsers.expat.xmlparser method), 1164
ExternalEntityRefHandler() (xml.parsers.expat.xmlparser method), 1167
extra (zipfile.ZipInfo attribute), 480
-extract <tarfile> [<output_dir>] tarfile command line option, 489
-extract <zipfile> <output_dir> zipfile command line option, 481
extract() (tarfile.TarFile method), 486
extract() (traceback.StackSummary class method), 1718
extract() (zipfile.ZipFile method), 476
extract_cookies() (http.cookiejar.CookieJar method), 1285
extract_stack() (in module traceback), 1716
extract_tb() (in module traceback), 1716
extract_version (zipfile.ZipInfo attribute), 480
extractall() (tarfile.TarFile method), 485
extractall() (zipfile.ZipFile method), 477
ExtractError, 483
extractfile() (tarfile.TarFile method), 486
extsep (in module os), 586

F

-f compileall command line option, 1803
-f, -faifast unittest command line option, 1495
-f, -file=<file> trace command line option, 1628
f_contiguous (memoryview attribute), 74
F_LOCK (in module os), 550
F_OK (in module os), 558
F_TEST (in module os), 550
F_TLOCK (in module os), 550
F_ULOCK (in module os), 550
fabs() (in module math), 284
factorial() (in module math), 285
factory() (importlib.util.LazyLoader class method), 1777
fail() (unittest.TestCase method), 1509
FAIL_FAST (in module doctest), 1478

failfast (unittest.TestResult attribute), 1515
failureException (unittest.TestCase attribute), 1509
failures (unittest.TestResult attribute), 1515
FakePath (class in test.support), 1598
False, 29, 84
false, 29
False (Built-in object), 29
False (built-in variable), 27
family (socket.socket attribute), 945
FancyURLopener (class in urllib.request), 1209
fast (pickle.Pickler attribute), 419
FastChildWatcher (class in asyncio), 914
fatalError() (xml.sax.handler.ErrorHandler method), 1157
Fault (class in xmlrpclib), 1297
faultCode (xmlrpclib.Fault attribute), 1297
faulthandler (module), 1605
faultString (xmlrpclib.Fault attribute), 1297
fchdir() (in module os), 560
fchmod() (in module os), 548
fchown() (in module os), 549
FCICreate() (in module msilib), 1827
fcntl (module), 1853
fcntl() (in module fcntl), 1853
fd (selectors.SelectorKey attribute), 993
fd() (in module turtle), 1362
fd_count() (in module test.support), 1589
fdasync() (in module os), 549
fdopen() (in module os), 548
Feature (class in msilib), 1831
feature_external_ges (in module xml.sax.handler), 1154
feature_external_pes (in module xml.sax.handler), 1154
feature_namespace_prefixes (in module xml.sax.handler), 1153
feature_namespaces (in module xml.sax.handler), 1153
feature_string_interning (in module xml.sax.handler), 1153
feature_validation (in module xml.sax.handler), 1153
feed() (email.parser.BytesFeedParser method), 1023
feed() (html.parser.HTMLParser method), 1112
feed() (xml.etree.ElementTree.XMLParser method), 1132
feed() (xml.etree.ElementTree.XMLPullParser method), 1133
feed() (xml.sax.xmlreader.IncrementalParser method), 1160
FeedParser (class in email.parser), 1024
fetch() (imaplib.IMAP4 method), 1239
Fetch() (msilib.View method), 1829
fetchall() (sqlite3.Cursor method), 450
fetchmany() (sqlite3.Cursor method), 450
fetchone() (sqlite3.Cursor method), 449
fflags (select.kevent attribute), 991
Field (class in dataclasses), 1691
field() (in module dataclasses), 1690
field_size_limit() (in module csv), 494
fieldnames (csv.csvreader attribute), 498
fields (uuid.UUID attribute), 1263
fields() (in module dataclasses), 1691
file
 byte-code, 1801, 1890
 configuration, 499
 copying, 406
 debugger configuration, 1610
 .ini, 499
 large files, 1845
 mime.types, 1102
 modes, 17
 path configuration, 1742
 .pdrc, 1610
 plist, 521
 temporary, 398
file ...
 compileall command line option, 1803
file (pycbr.Class attribute), 1801
file (pycbr.Function attribute), 1800
file control
 UNIX, 1853
file name
 temporary, 398
file object, 1902
 io module, 588
 open() built-in function, 16
FILE_ATTRIBUTE_ARCHIVE (in module stat), 396
FILE_ATTRIBUTE_COMPRESSED (in module stat), 396
FILE_ATTRIBUTE_DEVICE (in module stat), 396
FILE_ATTRIBUTE_DIRECTORY (in module stat), 396
FILE_ATTRIBUTE_ENCRYPTED (in module stat), 396
FILE_ATTRIBUTE_HIDDEN (in module stat), 396
FILE_ATTRIBUTE_INTEGRITY_STREAM (in module stat), 396
FILE_ATTRIBUTE_NO_SCRUB_DATA (in module stat), 396
FILE_ATTRIBUTE_NORMAL (in module stat), 396
FILE_ATTRIBUTE_NOT_CONTENT_INDEXED (in module stat), 396
FILE_ATTRIBUTE_OFFLINE (in module stat), 396

FILE_ATTRIBUTE_READONLY (in module stat), 396
FILE_ATTRIBUTE_REPARSE_POINT (in module stat), 396
FILE_ATTRIBUTE_SPARSE_FILE (in module stat), 396
FILE_ATTRIBUTE_SYSTEM (in module stat), 396
FILE_ATTRIBUTE_TEMPORARY (in module stat), 396
FILE_ATTRIBUTE_VIRTUAL (in module stat), 396
file_dispatcher (class in asyncore), 998
file_open() (urllib.request.FileHandler method), 1204
file_size (zipfile.ZipInfo attribute), 481
file_wrapper (class in asyncore), 998
filecmp (module), 396
fileConfig() (in module logging.config), 662
FileCookieJar (class in http.cookiejar), 1284
FileEntry (class in tkinter.tix), 1435
FileExistsError, 93
FileFinder (class in importlib.machinery), 1771
FileHandler (class in logging), 673
FileHandler (class in urllib.request), 1197
FileInput (class in fileinput), 391
fileinput (module), 389
FileIO (class in io), 594
file-like object, 1903
fileno() (in module fileinput), 390
FileLoader (class in importlib.abc), 1766
filemode() (in module stat), 393
filename (doctest.DocTest attribute), 1485
filename (http.cookiejar.FileCookieJar attribute), 1287
filename (OSError attribute), 90
filename (traceback.TracebackException attribute), 1718
filename (tracemalloc.Frame attribute), 1636
filename (zipfile.ZipFile attribute), 478
filename (zipfile.ZipInfo attribute), 480
filename() (in module fileinput), 390
filename2 (OSError attribute), 90
filename_only (in module tabnanny), 1799
filename_pattern (tracemalloc.Filter attribute), 1636
filenames
 pathname expansion, 403
 wildcard expansion, 404
fileno() (http.client.HTTPResponse method), 1226
fileno() (in module fileinput), 390
fileno() (io.IOBase method), 591
fileno() (multiprocessing.connection.Connection method), 777
fileno() (ossaudiodev.oss_audio_device method), 1336
fileno() (ossaudiodev.oss_mixer_device method), 1338
fileno() (select.devpoll method), 987
fileno() (select.epoll method), 989
fileno() (select.kqueue method), 990
fileno() (selectors.DevpollSelector method), 995
fileno() (selectors.EpollSelector method), 994
fileno() (selectors.KqueueSelector method), 995
fileno() (socketserver.BaseServer method), 1268
fileno() (socket.socket method), 939
fileno() (telnetlib.Telnet method), 1261
FileNotFoundException, 93
fileobj (selectors.SelectorKey attribute), 993
FileSelectBox (class in tkinter.tix), 1435
FileType (class in argparse), 637
FileWrapper (class in wsgiref.util), 1185
fill() (in module textwrap), 139
fill() (textwrap.TextWrapper method), 142
fillcolor() (in module turtle), 1371
filling() (in module turtle), 1372
filter (2to3 fixer), 1581
Filter (class in logging), 652
Filter (class in tracemalloc), 1636
filter (select.kevent attribute), 991
filter() (built-in function), 11
filter() (in module curses), 687
filter() (in module fnmatch), 405
filter() (logging.Filter method), 652
filter() (logging.Handler method), 650
filter() (logging.Logger method), 648
FILTER_DIR (in module unittest.mock), 1552
filter_traces() (tracemalloc.Snapshot method), 1637
filterfalse() (in module itertools), 342
filterwarnings() (in module warnings), 1687
finalize (class in weakref), 243
find() (bytearray method), 57
find() (bytes method), 57
find() (doctest.DocTestFinder method), 1486
find() (in module gettext), 1343
find() (mmap.mmap method), 1011
find() (str method), 45
find() (xml.etree.ElementTree.Element method), 1128
find() (xml.etree.ElementTree.ElementTree method), 1130
find_class() (pickle protocol), 426
find_class() (pickle.Unpickler method), 419
find_library() (in module ctypes.util), 743
find_loader() (importlib.abc.PathEntryFinder method), 1763
find_loader() (importlib.machinery.FileFinder method), 1772

find_loader() (in module importlib), 1760
 find_loader() (in module pkgutil), 1754
 find_longest_match() (difflib.SequenceMatcher method), 133
 find_module() (imp.NullImporter method), 1894
 find_module() (importlib.abc.Finder method), 1762
 find_module() (importlib.abc.MetaPathFinder method), 1762
 find_module() (importlib.abc.PathEntryFinder method), 1763
 find_module() (importlib.machinery.PathFinder class method), 1771
 find_module() (in module imp), 1890
 find_module() (zipimport.zipimporter method), 1752
 find_msvcrt() (in module ctypes.util), 743
 find_spec() (importlib.abc.MetaPathFinder method), 1762
 find_spec() (importlib.abc.PathEntryFinder method), 1763
 find_spec() (importlib.machinery.FileFinder method), 1771
 find_spec() (importlib.machinery.PathFinder class method), 1771
 find_spec() (in module importlib.util), 1775
 find_unused_port() (in module test.support), 1595
 find_user_password() (urllib.request.HTTPPasswordMgr method), 1202, 1203
 .findall() (in module re), 116
 .findall() (re.Pattern method), 119
 .findall() (xml.etree.ElementTree.Element method), 1128
 .findall() (xml.etree.ElementTree.ElementTree method), 1130
 .findCaller() (logging.Logger method), 649
 finder, 1903
 Finder (class in importlib.abc), 1762
 findfactor() (in module audioop), 1322
 findfile() (in module test.support), 1589
 findfit() (in module audioop), 1322
 finditer() (in module re), 116
 finditer() (re.Pattern method), 119
 findlabels() (in module dis), 1809
 findlinestarts() (in module dis), 1809
 findmatch() (in module mailcap), 1082
 findmax() (in module audioop), 1322
 findtext() (xml.etree.ElementTree.Element method), 1128
 findtext() (xml.etree.ElementTree.ElementTree method), 1130
 .finish() (socketserver.BaseRequestHandler method), 1270
 finish_request() (socketserver.BaseServer method), 1269
 firstChild (xml.dom.Node attribute), 1137
 firstkey() (dbm.gnu.gdbm method), 435
 firstweekday() (in module calendar), 209
 fix_missing_locations() (in module ast), 1789
 fix_sentence_endings (textwrap.TextWrapper attribute), 141
 Flag (class in enum), 261
 flag_bits (zipfile.ZipInfo attribute), 480
 flags (in module sys), 1662
 flags (re.Pattern attribute), 119
 flags (select.kevent attribute), 991
 flash() (in module curses), 687
 flatten() (email.generator.BytesGenerator method), 1027
 flatten() (email.generator.Generator method), 1028
 flattening objects, 415
 float built-in function, 31
 float (built-in class), 11
 float_info (in module sys), 1663
 float_repr_style (in module sys), 1664
 floating point literals, 31
 object, 30
 FloatingPointError, 88
 FloatOperation (class in decimal), 313
 flock() (in module fcntl), 1854
 floor division, 1903
 floor() (in module math), 31, 285
 floordiv() (in module operator), 360
 flush() (bz2.BZ2Compressor method), 467
 flush() (formatter.writer method), 1823
 flush() (io.BufferedWriter method), 596
 flush() (io.IOBase method), 591
 flush() (logging.Handler method), 650
 flush() (logging.handlers.BufferingHandler method), 682
 flush() (logging.handlers.MemoryHandler method), 682
 flush() (logging.StreamHandler method), 672
 flush() (lzma.LZMACompressor method), 470
 flush() (mailbox.Mailbox method), 1085
 flush() (mailbox.Maildir method), 1087
 flush() (mailbox.MH method), 1089
 flush() (mmap.mmap method), 1011
 flush() (zlib.Compress method), 461
 flush() (zlib.Decompress method), 462
 flush_headers() (http.server.BaseHTTPRequestHandler method), 1277
 flush_softspace() (formatter.formatter method), 1822
 flushinp() (in module curses), 687

FlushKey() (in module `winreg`), 1836
fma() (`decimal.Context` method), 308
fma() (`decimal.Decimal` method), 301
fmod() (in module `math`), 285
`FMT_BINARY` (in module `plistlib`), 523
`FMT_XML` (in module `plistlib`), 523
`fnmatch` (module), 404
`fnmatch()` (in module `fnmatch`), 404
`fnmatchcase()` (in module `fnmatch`), 404
`focus()` (`tkinter.ttk.Treeview` method), 1427
`fold` (`datetime.datetime` attribute), 185
`fold` (`datetime.time` attribute), 192
`fold()` (`email.headerregistry.BaseHeader` method), 1038
`fold()` (`email.policy.Compat32` method), 1036
`fold()` (`email.policy.EmailPolicy` method), 1034
`fold()` (`email.policy.Policy` method), 1033
`fold_binary()` (`email.policy.Compat32` method), 1036
`fold_binary()` (`email.policy.EmailPolicy` method), 1034
`fold_binary()` (`email.policy.Policy` method), 1033
`FOR_ITER` (opcode), 1816
`forget()` (in module `test.support`), 1588
`forget()` (`tkinter.ttk.Notebook` method), 1422
`fork()` (in module `os`), 578
`fork()` (in module `pty`), 1852
`ForkingMixIn` (class in `socketserver`), 1267
`ForkingTCPServer` (class in `socketserver`), 1267
`ForkingUDPServer` (class in `socketserver`), 1267
`forkpty()` (in module `os`), 578
`Form` (class in `tkinter.tix`), 1437
`format` (memoryview attribute), 74
`format` (`struct.Struct` attribute), 156
`format()` (built-in function), 12
`format()` (in module `locale`), 1354
`format()` (`logging.Formatter` method), 651
`format()` (`logging.Handler` method), 651
`format()` (`pprint.PrettyPrinter` method), 256
`format()` (`str` method), 45
`format()` (`string.Formatter` method), 98
`format()` (`traceback.StackSummary` method), 1719
`format()` (`traceback.TracebackException` method), 1718
`format()` (`tracemalloc.Traceback` method), 1639
`format_datetime()` (in module `email.utils`), 1070
`format_exc()` (in module `traceback`), 1717
`format_exception()` (in module `traceback`), 1717
`format_exception_only()` (in module `traceback`), 1716
`format_exception_only()` (`traceback.TracebackException` method), 1718
`format_field()` (`string.Formatter` method), 99
`format_help()` (`argparse.ArgumentParser` method), 640
`format_list()` (in module `traceback`), 1716
`format_map()` (`str` method), 46
`format_stack()` (in module `traceback`), 1717
`format_stack_entry()` (`bdb.Bdb` method), 1604
`format_string()` (in module `locale`), 1354
`format_tb()` (in module `traceback`), 1717
`format_usage()` (`argparse.ArgumentParser` method), 640
`FORMAT_VALUE` (opcode), 1818
`formataddr()` (in module `email.utils`), 1069
`formatargspec()` (in module `inspect`), 1736
`formatargvalues()` (in module `inspect`), 1737
`formatdate()` (in module `email.utils`), 1070
`FormatError`, 1099
`FormatError()` (in module `ctypes`), 743
`formatException()` (`logging.Formatter` method), 652
`formatmonth()` (`calendar.HTMLCalendar` method), 207
`formatmonth()` (`calendar.TextCalendar` method), 207
`formatStack()` (`logging.Formatter` method), 652
`Formatter` (class in `logging`), 651
`Formatter` (class in `string`), 98
`formatter` (module), 1821
`formatTime()` (`logging.Formatter` method), 651
`formatting`
 `bytearray` (%), 66
 `bytes` (%), 66
`formatting`, `string` (%), 51
`formatwarning()` (in module `warnings`), 1687
`formatyear()` (`calendar.HTMLCalendar` method), 208
`formatyear()` (`calendar.TextCalendar` method), 207
`formatyearpage()` (`calendar.HTMLCalendar` method), 208
`Fortran contiguous`, 1901
`forward()` (in module `turtle`), 1362
`found_terminator()` (`asyncchat.async_chat` method), 1001
`fpathconf()` (in module `os`), 549
`fqdn` (`smtplib.SMTPChannel` attribute), 1259
`Fraction` (class in `fractions`), 321
`fractions` (module), 321
`Frame` (class in `tracemalloc`), 1636
`frame` (`tkinter.scrolledtext.ScrolledText` attribute), 1438
`FrameSummary` (class in `traceback`), 1719
`FrameType` (in module `types`), 250
`freeze()` (in module `gc`), 1725
`freeze_support()` (in module `multiprocessing`), 776
`frexp()` (in module `math`), 285
`from_address()` (`ctypes._CData` method), 745
`from_buffer()` (`ctypes._CData` method), 745
`from_buffer_copy()` (`ctypes._CData` method), 745
`from_bytes()` (`int` class method), 33

from_callable() (`inspect.Signature` class method), 1732
 from_decimal() (`fractions.Fraction` method), 322
 from_exception() (`traceback.TracebackException` class method), 1718
 from_file() (`zipfile.ZipInfo` class method), 479
 from_float() (`decimal.Decimal` method), 301
 from_float() (`fractions.Fraction` method), 322
 from_iterable() (`itertools.chain` class method), 340
 from_list() (`traceback.StackSummary` class method), 1719
 from_param() (`ctypes._CData` method), 745
 from_traceback() (`dis.Bytecode` class method), 1807
 frombuf() (`tarfile.TarInfo` class method), 487
 frombytes() (`array.array` method), 239
 fromfd() (in module `socket`), 934
 fromfd() (`select.epoll` method), 989
 fromfd() (`select.kqueue` method), 990
 fromfile() (`array.array` method), 239
 fromhex() (`bytearray` class method), 55
 fromhex() (`bytes` class method), 54
 fromhex() (`float` class method), 34
 fromisoformat() (`datetime.date` class method), 180
 fromisoformat() (`datetime.datetime` class method), 185
 fromisoformat() (`datetime.time` class method), 193
 fromkeys() (`collections.Counter` method), 214
 fromkeys() (`dict` class method), 78
 fromlist() (`array.array` method), 239
 fromordinal() (`datetime.date` class method), 180
 fromordinal() (`datetime.datetime` class method), 184
 fromshare() (in module `socket`), 934
 fromstring() (`array.array` method), 239
 fromstring() (in module `xml.etree.ElementTree`), 1125
 fromstringlist() (in module `xml.etree.ElementTree`), 1126
 fromtarfile() (`tarfile.TarInfo` class method), 487
 fromtimestamp() (`datetime.date` class method), 179
 fromtimestamp() (`datetime.datetime` class method), 184
 fromunicode() (`array.array` method), 239
 fromutc() (`datetime.timezone` method), 203
 fromutc() (`datetime.tzinfo` method), 197
 FrozenImporter (class in `importlib.machinery`), 1770
 FrozenInstanceError, 1696
 frozenset (built-in class), 75
 FrozenSet (class in `typing`), 1460
 fs_is_case_insensitive() (in module `test.support`), 1596
 FS_NONASCII (in module `test.support`), 1587
 fsdecode() (in module `os`), 543
 fsencode() (in module `os`), 543
 fspath() (in module `os`), 543
 fstat() (in module `os`), 549
 fstatvfs() (in module `os`), 549
 f-string, 1902
 fsum() (in module `math`), 285
 fsync() (in module `os`), 549
 FTP, 1210
 `ftplib` (standard module), 1228
 `protocol`, 1210, 1228
 FTP (class in `ftplib`), 1229
 ftp_open() (`urllib.request.FTPHandler` method), 1204
 FTP_TLS (class in `ftplib`), 1229
 FTPHandler (class in `urllib.request`), 1197
 ftplib (module), 1228
 truncate() (in module `os`), 549
 Full, 833
 full() (`asyncio.Queue` method), 871
 full() (`multiprocessing.Queue` method), 774
 full() (`queue.Queue` method), 834
 full_url (`urllib.request.Request` attribute), 1198
 fullmatch() (in module `re`), 115
 fullmatch() (`re.Pattern` method), 119
 func (`functools.partial` attribute), 359
 funcattrs (2to3 fixer), 1581
 function, 1903
 Function (class in `symtable`), 1792
 function annotation, 1903
 FunctionTestCase (class in `unittest`), 1511
 FunctionType (in module `types`), 249
 functools (module), 352
 funny_files (`filecmp.dircmp` attribute), 398
 future (2to3 fixer), 1581
 Future (class in `asyncio`), 896
 Future (class in `concurrent.futures`), 811
 FutureWarning, 94
 fwalk() (in module `os`), 573

G

-g, --timing
 trace command line option, 1628
 G.722, 1326
 gaierror, 930
 gamma() (in module `math`), 289
 gammavariate() (in module `random`), 326
 garbage (in module `gc`), 1725
 garbage collection, 1903
 gather() (`curses.textpad.Textbox` method), 704
 gauss() (in module `random`), 326
 gc (module), 1723
 gc_collect() (in module `test.support`), 1592
 gcd() (in module `fractions`), 323
 gcd() (in module `math`), 285
 ge() (in module `operator`), 360
 gen_uuid() (in module `msilib`), 1828

generator, 1903
Generator (class in `collections.abc`), 229
Generator (class in `email.generator`), 1027
Generator (class in `typing`), 1461
generator expression, 1903
generator iterator, 1903
GeneratorExit, 88
GeneratorType (in module types), 249
Generic (class in `typing`), 1458
generic function, 1904
`generic_visit()` (`ast.NodeVisitor` method), 1790
`genops()` (in module `pickletools`), 1820
`get()` (`asyncio.Queue` method), 871
`get()` (`configparser.ConfigParser` method), 515
`get()` (`contextvars.Context` method), 841
`get()` (`contextvars.ContextVar` method), 839
`get()` (dict method), 78
`get()` (`email.message.EmailMessage` method), 1017
`get()` (`email.message.Message` method), 1056
`get()` (in module `webbrowser`), 1174
`get()` (`mailbox.Mailbox` method), 1084
`get()` (`multiprocessing.pool.AsyncResult` method), 792
`get()` (`multiprocessing.Queue` method), 774
`get()` (`multiprocessing.SimpleQueue` method), 775
`get()` (`osaudiodev.oss_mixer_device` method), 1339
`get()` (`queue.Queue` method), 834
`get()` (`queue.SimpleQueue` method), 835
`get()` (`tkinter.ttk.Combobox` method), 1419
`get()` (`tkinter.ttk.Spinbox` method), 1420
`get()` (`types.MappingProxyType` method), 251
`get()` (`xml.etree.ElementTree.Element` method), 1128
`GET_AITER` (opcode), 1812
`get_all()` (`email.message.EmailMessage` method), 1017
`get_all()` (`email.message.Message` method), 1056
`get_all()` (`wsgiref.headers.Headers` method), 1186
`get_all_breaks()` (`bdb.Bdb` method), 1604
`get_all_start_methods()` (in module `multiprocessing`), 776
`GET_ANEXT` (opcode), 1812
`get_app()` (`wsgiref.simple_server.WSGIServer` method), 1187
`get_archive_formats()` (in module `shutil`), 412
`get_asynccgen_hooks()` (in module `sys`), 1667
`get_attribute()` (in module `test.support`), 1595
`GET_AWAITABLE` (opcode), 1812
`get_begidx()` (in module `readline`), 148
`get_blocking()` (in module `os`), 550
`get_body()` (`email.message.EmailMessage` method), 1020
`get_body_encoding()` (`email.charset.Charset` method), 1067
`get_boundary()` (`email.message.EmailMessage` method), 1019
`get_boundary()` (`email.message.Message` method), 1059
`get_bpbynumber()` (`bdb.Bdb` method), 1604
`get_break()` (`bdb.Bdb` method), 1604
`get_breaks()` (`bdb.Bdb` method), 1604
`get_buffer()` (`asyncio.BufferedProtocol` method), 905
`get_buffer()` (`xdrlib.Packer` method), 519
`get_buffer()` (`xdrlib.Unpacker` method), 520
`get_bytes()` (`mailbox.Mailbox` method), 1084
`get_ca_certs()` (`ssl.SSLContext` method), 969
`get_cache_token()` (in module `abc`), 1714
`get_channel_binding()` (`ssl.SSLSocket` method), 966
`get_charset()` (`email.message.Message` method), 1055
`get_charsets()` (`email.message.EmailMessage` method), 1019
`get_charsets()` (`email.message.Message` method), 1059
`get_child_watcher()` (`asyncio.AbstractEventLoopPolicy` method), 913
`get_child_watcher()` (in module `asyncio`), 913
`get_children()` (`symtable.SymbolTable` method), 1792
`get_children()` (`tkinter.ttk.Treeview` method), 1426
`get_ciphers()` (`ssl.SSLContext` method), 969
`get_clock_info()` (in module `time`), 603
`get_close_matches()` (in module `difflib`), 130
`get_code()` (`importlib.abc.InspectLoader` method), 1765
`get_code()` (`importlib.abc.SourceLoader` method), 1768
`get_code()` (`importlib.machinery.ExtensionFileLoader` method), 1773
`get_code()` (`importlib.machinery.SourcelessFileLoader` method), 1772
`get_code()` (`zipimport.zipimporter` method), 1752
`get_completer()` (in module `readline`), 148
`get_completer_delims()` (in module `readline`), 148
`get_completion_type()` (in module `readline`), 148
`get_config_h_filename()` (in module `sysconfig`), 1679
`get_config_var()` (in module `sysconfig`), 1677
`get_config_vars()` (in module `sysconfig`), 1677
`get_content()` (`email.contentmanager.ContentManager` method), 1043
`get_content()` (`email.message.EmailMessage` method), 1021
`get_content()` (in module `email.contentmanager`), 1044
`get_content_charset()` (`email.message.EmailMessage` method), 1019
`get_content_charset()` (`email.message.Message`

method), 1059
`get_content_disposition()` (email.message.EmailMessage method), 1019
`get_content_disposition()` (email.message.Message method), 1059
`get_content_maintype()` (email.message.EmailMessage method), 1018
`get_content_maintype()` (email.message.Message method), 1057
`get_content_subtype()` (email.message.EmailMessage method), 1018
`get_content_subtype()` (email.message.Message method), 1057
`get_content_type()` (email.message.EmailMessage method), 1018
`get_content_type()` (email.message.Message method), 1057
`get_context()` (in module multiprocessing), 776
`get_coroutine_origin_tracking_depth()` (in module sys), 1667
`get_coroutine_wrapper()` (in module sys), 1667
`get_count()` (in module gc), 1724
`get_current_history_length()` (in module readline), 147
`get_data()` (importlib.abc.FileLoader method), 1767
`get_data()` (importlib.abc.ResourceLoader method), 1765
`get_data()` (in module pkgutil), 1755
`get_data()` (zipimport.zipimporter method), 1752
`get_date()` (mailbox.MaildirMessage method), 1092
`get_debug()` (asyncio.loop method), 888
`get_debug()` (in module gc), 1723
`get_default()` (argparse.ArgumentParser method), 640
`get_default_domain()` (in module nis), 1861
`get_default_type()` (email.message.EmailMessage method), 1018
`get_default_type()` (email.message.Message method), 1057
`get_default_verify_paths()` (in module ssl), 955
`get_dialect()` (in module csv), 494
`get_docstring()` (in module ast), 1789
`get_doctest()` (doctest.DocTestParser method), 1486
`get_endidx()` (in module readline), 148
`get_environ()` (wsgiref.simple_server.WSGIRequestHandler method), 1187
`get_errno()` (in module ctypes), 743
`get_event_loop()` (asyncio.AbstractEventLoopPolicy method), 913
`get_event_loop()` (in module asyncio), 875
`get_event_loop_policy()` (in module asyncio), 912
`get_examples()` (doctest.DocTestParser method), 1487
`get_exception_handler()` (asyncio.loop method), 888
`get_exec_path()` (in module os), 543
`get_extra_info()` (asyncio.BaseTransport method), 900
`get_extra_info()` (asyncio.StreamWriter method), 859
`get_field()` (string.Formatter method), 98
`get_file()` (mailbox.Babyl method), 1090
`get_file()` (mailbox.Mailbox method), 1085
`get_file()` (mailbox.Maildir method), 1087
`get_file()` (mailbox.mbox method), 1088
`get_file()` (mailbox.MH method), 1089
`get_file()` (mailbox.MMDF method), 1090
`get_file_breaks()` (bdb.Bdb method), 1604
`get_filename()` (email.message.EmailMessage method), 1018
`get_filename()` (email.message.Message method), 1059
`get_filename()` (importlib.abc.ExecutionLoader method), 1766
`get_filename()` (importlib.abc.FileLoader method), 1767
`get_filename()` (importlib.machinery.ExtensionFileLoader method), 1773
`get_filename()` (zipimport.zipimporter method), 1752
`get_flags()` (mailbox.MaildirMessage method), 1092
`get_flags()` (mailbox.mboxMessage method), 1093
`get_flags()` (mailbox.MMDFMessage method), 1098
`get_folder()` (mailbox.Maildir method), 1086
`get_folder()` (mailbox.MH method), 1088
`get_frees()` (symtable.Function method), 1792
`get_freeze_count()` (in module gc), 1725
`get_from()` (mailbox.mboxMessage method), 1093
`get_from()` (mailbox.MMDFMessage method), 1097
`get_full_url()` (urllib.request.Request method), 1199
`get_globals()` (symtable.Function method), 1792
`get_grouped_OPCODES()` (difflib.SequenceMatcher method), 134
`get_handle_inheritable()` (in module os), 556
`get_header()` (urllib.request.Request method), 1199
`get_history_item()` (in module readline), 147
`get_history_length()` (in module readline), 147
`get_id()` (symtable.SymbolTable method), 1791
`get_ident()` (in module _thread), 836
`get_ident()` (in module threading), 751
`get_identifiers()` (symtable.SymbolTable method), 1792
`get_importer()` (in module pkgutil), 1754
`get_info()` (mailbox.MaildirMessage method), 1092
`get_inheritable()` (in module os), 556

get_inheritable() (socket.socket method), 939
get_instructions() (in module dis), 1809
get_interpreter() (in module zipapp), 1654
GET_ITER (opcode), 1810
get_key() (selectors.BaseSelector method), 994
get_labels() (mailbox.Babyl method), 1090
get_labels() (mailbox.BabylMessage method), 1096
get_last_error() (in module ctypes), 744
get_line_buffer() (in module readline), 146
get_lineno() (symtable.SymbolTable method), 1791
get_loader() (in module pkgutil), 1754
get_locals() (symtable.Function method), 1792
get_logger() (in module multiprocessing), 797
get_loop() (asyncio.Future method), 897
get_loop() (asyncio.Server method), 891
get_magic() (in module imp), 1890
get_makefile_filename() (in module sysconfig), 1679
get_map() (selectors.BaseSelector method), 994
get_matching_blocks() (difflib.SequenceMatcher method), 133
get_message() (mailbox.Mailbox method), 1084
get_method() (urllib.request.Request method), 1198
get_methods() (symtable.Class method), 1792
get_mixed_type_key() (in module ipaddress), 1319
get_name() (symtable.Symbol method), 1792
get_name() (symtable.SymbolTable method), 1791
get_namespace() (symtable.Symbol method), 1793
get_namespaces() (symtable.Symbol method), 1793
get_nonstandard_attr() (http.cookiejar.Cookie method), 1291
get_nowait() (asyncio.Queue method), 872
get_nowait() (multiprocessing.Queue method), 774
get_nowait() (queue.Queue method), 834
get_nowait() (queue.SimpleQueue method), 836
get_object_traceback() (in module tracemalloc), 1634
get_objects() (in module gc), 1724
get_opcodes() (difflib.SequenceMatcher method), 134
get_option() (optparse.OptionParser method), 1881
get_option_group() (optparse.OptionParser method), 1872
get_original_stdout() (in module test.support), 1591
get_osfhandle() (in module msvcr), 1833
get_output_charset() (email.charset.Charset method), 1067
get_param() (email.message.Message method), 1057
get_parameters() (symtable.Function method), 1792
get_params() (email.message.Message method), 1057
get_path() (in module sysconfig), 1678
get_path_names() (in module sysconfig), 1678
get_paths() (in module sysconfig), 1678
get_payload() (email.message.Message method), 1054
get_pid() (asyncio.SubprocessTransport method), 902
get_pipe_transport() (asyncio.SubprocessTransport method), 902
get_platform() (in module sysconfig), 1678
get_poly() (in module turtle), 1377
get_position() (xdrlib.Unpacker method), 520
get_protocol() (asyncio.BaseTransport method), 901
get_python_version() (in module sysconfig), 1678
get_recsrc() (osaudiodev.oss_mixer_device method), 1339
get_referents() (in module gc), 1724
get_referrers() (in module gc), 1724
get_request() (socketserver.BaseServer method), 1269
get_returncode() (asyncio.SubprocessTransport method), 902
get_running_loop() (in module asyncio), 875
get_scheme() (wsgiref.handlers.BaseHandler method), 1190
get_scheme_names() (in module sysconfig), 1678
get_sequences() (mailbox.MH method), 1089
get_sequences() (mailbox.MHMessage method), 1095
get_server() (multiprocessing.managers.BaseManager method), 784
get_server_certificate() (in module ssl), 955
get_shapepoly() (in module turtle), 1376
get_socket() (telnetlib.Telnet method), 1261
get_source() (importlib.abc.InspectLoader method), 1766
get_source() (importlib.abc.SourceLoader method), 1768
get_source() (importlib.machinery.ExtensionFileLoader method), 1773
get_source() (importlib.machinery.SourcelessFileLoader method), 1772
get_source() (zipimport.zipimporter method), 1752
get_stack() (asyncio.Task method), 855
get_stack() (bdb.Bdb method), 1604
get_start_method() (in module multiprocessing), 776
get_starttag_text() (html.parser.HTMLParser method), 1113
get_stats() (in module gc), 1724
get_stderr() (wsgiref.handlers.BaseHandler method), 1190
get_stderr() (wsgiref.simple_server.WSGIRequestHandler method), 1187
get_stdin() (wsgiref.handlers.BaseHandler method), 1190

get_string() (mailbox.Mailbox method), 1085
 get_subdir() (mailbox.MaildirMessage method), 1092
 get_suffixes() (in module imp), 1890
 get_symbols() (symtable.SymbolTable method), 1792
 get_tag() (in module imp), 1893
 get_task_factory() (asyncio.loop method), 879
 get_terminal_size() (in module os), 556
 get_terminal_size() (in module shutil), 413
 get_terminator() (asynchat.async_chat method), 1001
 get_threshold() (in module gc), 1724
 get_token() (shlex.shlex method), 1398
 get_traceback_limit() (in module tracemalloc), 1634
 get_traced_memory() (in module tracemalloc), 1635
 get_tracemalloc_memory() (in module tracemalloc), 1635
 get_type() (symtable.SymbolTable method), 1791
 get_type_hints() (in module typing), 1464
 get_unixfrom() (email.message.EmailMessage method), 1016
 get_unixfrom() (email.message.Message method), 1054
 get_unpack_formats() (in module shutil), 413
 get_usage() (optparse.OptionParser method), 1883
 get_value() (string.Formatter method), 98
 get_version() (optparse.OptionParser method), 1872
 get_visible() (mailbox.BabylMessage method), 1096
 get_wch() (curses.window method), 694
 get_write_buffer_limits() (asyncio.WriteTransport method), 901
 get_write_buffer_size() (asyncio.WriteTransport method), 901
GET_YIELD_FROM_ITER (opcode), 1810
 getacl() (imaplib.IMAP4 method), 1239
 getaddresses() (in module email.utils), 1070
 getaddrinfo() (asyncio.loop method), 885
 getaddrinfo() (in module socket), 934
 getallocatedblocks() (in module sys), 1664
 getandroidapilevel() (in module sys), 1665
 getannotation() (imaplib.IMAP4 method), 1239
 getargspec() (in module inspect), 1735
 getargvalues() (in module inspect), 1736
 getatime() (in module os.path), 386
 setattr() (built-in function), 12
 setattr_static() (in module inspect), 1739
 getAttribute() (xml.dom.Element method), 1140
 getAttributeNode() (xml.dom.Element method), 1140
 getAttributeNodeNS() (xml.dom.Element method), 1140
 getAttributeNS() (xml.dom.Element method), 1140
 GetBase() (xml.parsers.expat.xmlparser method), 1164
 getbegyx() (curses.window method), 694
 getbkgd() (curses.window method), 694
 getblocking() (socket.socket method), 940
 getboolean() (configparser.ConfigParser method), 515
 getbuffer() (io.BytesIO method), 595
 getByteStream() (xml.sax.xmlreader.InputSource method), 1161
 getcallargs() (in module inspect), 1737
 getcanvas() (in module turtle), 1384
 getcapabilities() (nntplib.NNTP method), 1245
 getcaps() (in module mailcap), 1082
 getch() (curses.window method), 694
 getch() (in module msvcr), 1833
 getCharacterStream() (xml.sax.xmlreader.InputSource method), 1162
 getche() (in module msvcr), 1833
 getcheckinterval() (in module sys), 1665
 getChild() (logging.Logger method), 647
 getchildren() (xml.etree.ElementTree.Element method), 1129
 getclasstree() (in module inspect), 1735
 getclosurevars() (in module inspect), 1737
 GetColumnInfo() (msilib.View method), 1828
 getColumnNumber() (xml.sax.xmlreader.Locator method), 1161
 getcomments() (in module inspect), 1730
 getcompname() (aifc.aifc method), 1325
 getcompname() (sunau.AU_read method), 1328
 getcompname() (wave.Wave_read method), 1330
 getcomptype() (aifc.aifc method), 1325
 getcomptype() (sunau.AU_read method), 1328
 getcomptype() (wave.Wave_read method), 1330
 getContentHandler() (xml.sax.xmlreader.XMLReader method), 1160
 getcontext() (in module decimal), 305
 getcoroutinelocals() (in module inspect), 1741
 getcoroutinestate() (in module inspect), 1740
 getctime() (in module os.path), 386
 getcwd() (in module os), 560
 getcldb() (in module os), 560
 getcwd (2to3 fixer), 1581
 getdecoder() (in module codecs), 157
 getdefaultencoding() (in module sys), 1665
 getdefaultlocale() (in module locale), 1353
 getdefaulttimeout() (in module socket), 938
 getdlopenflags() (in module sys), 1665
 getdoc() (in module inspect), 1730
 getDOMImplementation() (in module xml.dom), 1135
 getDTDHandler() (xml.sax.xmlreader.XMLReader method), 1160

getEffectiveLevel() (`logging.Logger` method), 647
getegid() (in module `os`), 543
getElementsByTagName() (`xml.dom.Document` method), 1139
getElementsByTagName() (`xml.dom.Element` method), 1140
getElementsByTagNameNS() (`xml.dom.Document` method), 1139
getElementsByTagNameNS() (`xml.dom.Element` method), 1140
getencoder() (in module `codecs`), 157
getEncoding() (`xml.sax.xmlreader.InputSource` method), 1161
getEntityResolver() (`xml.sax.xmlreader.XMLReader` method), 1160
getenv() (in module `os`), 543
getenvb() (in module `os`), 543
getErrorHandler() (`xml.sax.xmlreader.XMLReader` method), 1160
geteuid() (in module `os`), 544
getEvent() (`xml.dom.pulldom.DOMEventStream` method), 1150
getEventCategory() (logging.handlers.NTEventLogHandler method), 681
getEventType() (logging.handlers.NTEventLogHandler method), 681
getException() (`xml.sax.SAXException` method), 1152
getFeature() (`xml.sax.xmlreader.XMLReader` method), 1160
GetFieldCount() (`msilib.Record` method), 1829
getfile() (in module `inspect`), 1730
getfilesystemencodeerrors() (in module `sys`), 1665
getfilesystemencoding() (in module `sys`), 1665
getfirst() (`cgi.FieldStorage` method), 1178
getfloat() (`configparser.ConfigParser` method), 515
getfmnts() (ossaudiodev.oss_audio_device method), 1337
getfqdn() (in module `socket`), 935
getframeinfo() (in module `inspect`), 1738
getframerate() (aifc.aifc method), 1325
getframerate() (sunau.AU_read method), 1328
getframerate() (wave.Wave_read method), 1330
getfullargspec() (in module `inspect`), 1736
getgeneratorlocals() (in module `inspect`), 1741
getgeneratorstate() (in module `inspect`), 1740
getgid() (in module `os`), 544
getgrall() (in module `grp`), 1848
getgrgid() (in module `grp`), 1848
getgrnam() (in module `grp`), 1848
getgroupplist() (in module `os`), 544
getgroups() (in module `os`), 544
getheader() (`http.client.HTTPResponse` method), 1226
getheaders() (`http.client.HTTPResponse` method), 1226
gethostbyaddr() (in module `socket`), 547, 935
gethostbyname() (in module `socket`), 935
gethostbyname_ex() (in module `socket`), 935
gethostname() (in module `socket`), 547, 935
getincrementaldecoder() (in module `codecs`), 157
getincrementalencoder() (in module `codecs`), 157
getinfo() (`zipfile.ZipFile` method), 476
getinnerframes() (in module `inspect`), 1739
GetInputContext() (`xml.parsers.expat.xmlparser` method), 1164
getint() (`configparser.ConfigParser` method), 515
GetInteger() (`msilib.Record` method), 1829
getitem() (in module `operator`), 362
getiterator() (`xml.etree.ElementTree.Element` method), 1129
getiterator() (`xml.etree.ElementTree.ElementTree` method), 1130
getitimer() (in module `signal`), 1006
getkey() (`curses.window` method), 694
GetLastError() (in module `ctypes`), 743
getLength() (`xml.sax.xmlreader.Attributes` method), 1162
getLevelName() (in module `logging`), 658
getline() (in module `linecache`), 405
getLineNumber() (`xml.sax.xmlreader.Locator` method), 1161
getlist() (`cgi.FieldStorage` method), 1179
getloadavg() (in module `os`), 586
getLocale() (in module `locale`), 1353
getLogger() (in module `logging`), 656
getLoggerClass() (in module `logging`), 656
getlogin() (in module `os`), 544
getLogRecordFactory() (in module `logging`), 656
getmark() (aifc.aifc method), 1325
getmark() (sunau.AU_read method), 1328
getmark() (wave.Wave_read method), 1330
getmarkers() (aifc.aifc method), 1325
getmarkers() (sunau.AU_read method), 1328
getmarkers() (wave.Wave_read method), 1330
getmaxyx() (`curses.window` method), 695
getmember() (`tarfile.TarFile` method), 485
getmembers() (in module `inspect`), 1728
getmembers() (`tarfile.TarFile` method), 485
getMessage() (`logging.LogRecord` method), 653
getMessage() (`xml.sax.SAXException` method), 1152
getMessageID() (logging.handlers.NTEventLogHandler method), 681
getmodule() (in module `inspect`), 1730
getmodulename() (in module `inspect`), 1728
getmouse() (in module `curses`), 687

getmro() (in module inspect), 1737
 getmtime() (in module os.path), 386
 getname() (chunk.Chunk method), 1332
 getName() (threading.Thread method), 754
 getNameByQName() (xml.sax.xmlreader.AttributesNS method), 1162
 getnameinfo() (asyncio.loop method), 885
 getnameinfo() (in module socket), 936
 getnames() (tarfile.TarFile method), 485
 getNames() (xml.sax.xmlreader.Attributes method), 1162
 getnchannels() (aifc.aifc method), 1325
 getnchannels() (sunau.AU_read method), 1328
 getnchannels() (wave.Wave_read method), 1330
 getnframes() (aifc.aifc method), 1325
 getnframes() (sunau.AU_read method), 1328
 getnframes() (wave.Wave_read method), 1330
 getnode, 1264
 getnode() (in module uuid), 1264
 getopt (module), 643
 getopt() (in module getopt), 643
 GetoptError, 643
 getouterframes() (in module inspect), 1738
 getoutput() (in module subprocess), 830
 getpagesize() (in module resource), 1860
 getparams() (aifc.aifc method), 1325
 getparams() (sunau.AU_read method), 1328
 getparams() (wave.Wave_read method), 1330
 getparyx() (curses.window method), 695
 getpass (module), 684
 getpass() (in module getpass), 684
 GetPassWarning, 685
 getpeer cert() (ssl.SSLSocket method), 964
 getpeername() (socket.socket method), 940
 getpen() (in module turtle), 1378
 getpgid() (in module os), 544
 getpgrp() (in module os), 544
 getpid() (in module os), 544
 getpos() (html.parser.HTMLParser method), 1113
 getppid() (in module os), 544
 getpreferredencoding() (in module locale), 1353
 getpriority() (in module os), 545
 getprofile() (in module sys), 1666
 GetProperty() (msilib.SummaryInformation method), 1829
 getProperty() (xml.sax.xmlreader.XMLReader method), 1160
 GetPropertyCount() (msilib.SummaryInformation method), 1829
 getprotobyname() (in module socket), 936
 getproxies() (in module urllib.request), 1194
 getPublicId() (xml.sax.xmlreader.InputSource method), 1161
 getPublicId() (xml.sax.xmlreader.Locator method), 1161
 getpwall() (in module pwd), 1847
 getpwnam() (in module pwd), 1847
 getpwuid() (in module pwd), 1846
 get QNameByName() (xml.sax.xmlreader.AttributesNS method), 1162
 getQNames() (xml.sax.xmlreader.AttributesNS method), 1162
 getquota() (imaplib.IMAP4 method), 1239
 getquotaroot() (imaplib.IMAP4 method), 1239
 getrandbits() (in module random), 324
 getrandom() (in module os), 587
 getreader() (in module codecs), 158
 getrecursionlimit() (in module sys), 1665
 getrefcount() (in module sys), 1665
 getresgid() (in module os), 545
 getresponse() (http.client.HTTPConnection method), 1225
 getresuid() (in module os), 545
 getrlimit() (in module resource), 1857
 getroot() (xml.etree.ElementTree.ElementTree method), 1130
 getrusage() (in module resource), 1859
 getsample() (in module audioop), 1322
 getsampwidth() (aifc.aifc method), 1325
 getsampwidth() (sunau.AU_read method), 1328
 getsampwidth() (wave.Wave_read method), 1330
 getscreen() (in module turtle), 1378
 getservbyname() (in module socket), 936
 getservbyport() (in module socket), 936
 GetSetDescriptorType (in module types), 251
 getshapes() (in module turtle), 1384
 getsid() (in module os), 547
 getsignal() (in module signal), 1004
 getsitepackages() (in module site), 1744
 getsize() (chunk.Chunk method), 1332
 getsize() (in module os.path), 387
 getsizeof() (in module sys), 1665
 getsockname() (socket.socket method), 940
 getsockopt() (socket.socket method), 940
 getSource() (in module inspect), 1731
 getSourcefile() (in module inspect), 1731
 getSourceLines() (in module inspect), 1731
 getspall() (in module spwd), 1847
 getspnam() (in module spwd), 1847
 getState() (codecs.IncrementalDecoder method), 163
 getState() (codecs.IncrementalEncoder method), 162
 getState() (in module random), 324
 getStatusOutput() (in module subprocess), 830
 getstr() (curses.window method), 695
 GetString() (msilib.Record method), 1829
 getSubject() (logging.handlers.SMTPHandler method), 681

GetSummaryInformation() (msilib.Database method), 1828
getswitchinterval() (in module sys), 1666
getSystemId() (xml.sax.xmlreader.InputSource method), 1161
getSystemId() (xml.sax.xmlreader.Locator method), 1161
getsyx() (in module curses), 687
gettarinfo() (tarfile.TarFile method), 486
gettempdir() (in module tempfile), 401
gettempdirb() (in module tempfile), 401
gettempprefix() (in module tempfile), 401
gettempprefixb() (in module tempfile), 401
getTestCaseNames() (unittest.TestLoader method), 1513
gettext (module), 1341
gettext() (gettext.GNUTranslations method), 1345
gettext() (gettext.NullTranslations method), 1344
gettext() (in module gettext), 1342
gettext() (in module locale), 1356
gettimeout() (socket.socket method), 940
gettrace() (in module sys), 1666
getturtle() (in module turtle), 1378
getType() (xml.sax.xmlreader.Attributes method), 1162
getuid() (in module os), 545
geturl() (urllib.parse.urllib.parse.SplitResult method), 1215
getuser() (in module getpass), 685
getuserbase() (in module site), 1744
getusersitepackages() (in module site), 1744
getvalue() (io.BytesIO method), 595
getvalue() (io.StringIO method), 599
getValue() (xml.sax.xmlreader.Attributes method), 1162
getValueByQName() (xml.sax.xmlreader.AttributesNS method), 1162
getwch() (in module msvcr), 1833
getwche() (in module msvcr), 1833
getweakrefcount() (in module weakref), 242
getweakrefs() (in module weakref), 242
getwelcome() (ftplib.FTP method), 1231
getwelcome() (nntplib.NNTP method), 1245
getwelcome() (poplib.POP3 method), 1235
getwin() (in module curses), 687
getwindowsversion() (in module sys), 1666
getwriter() (in module codecs), 158
getattr() (in module os), 574
getyx() (curses.window method), 695
gid (tarfile.TarInfo attribute), 487
GIL, 1904
glob
 module, 404
glob (module), 403
glob() (in module glob), 403
glob() (msilib.Directory method), 1831
glob() (pathlib.Path method), 379
global interpreter lock, 1904
globals() (built-in function), 12
globs (doctest.DocTest attribute), 1485
gmtime() (in module time), 603
gname (tarfile.TarInfo attribute), 488
GNOME, 1346
GNU_FORMAT (in module tarfile), 484
gnu_getopt() (in module getopt), 643
GNUTranslations (class in gettext), 1345
got (doctest.DocTestFailure attribute), 1491
goto() (in module turtle), 1363
Graphical User Interface, 1403
GREATER (in module token), 1794
GREATEREQUAL (in module token), 1794
Greenwich Mean Time, 601
GRND_NONBLOCK (in module os), 588
GRND_RANDOM (in module os), 588
Group (class in email.headerregistry), 1042
group() (nntplib.NNTP method), 1247
group() (pathlib.Path method), 379
group() (re.Match method), 120
groupby() (in module itertools), 343
groupdict() (re.Match method), 121
groupindex (re.Pattern attribute), 119
groups (email.headerregistry.AddressHeader attribute), 1039
groups (re.Pattern attribute), 119
groups() (re.Match method), 121
grp (module), 1848
gt() (in module operator), 360
guess_all_extensions() (in module mimetypes), 1101
guess_all_extensions() (mimetypes.MimeTypes method), 1103
guess_extension() (in module mimetypes), 1101
guess_extension() (mimetypes.MimeTypes method), 1103
guess_scheme() (in module wsgiref.util), 1183
guess_type() (in module mimetypes), 1101
guess_type() (mimetypes.MimeTypes method), 1103
GUI, 1403
gzip (module), 463
GzipFile (class in gzip), 463

H

-h, --help
 json.tool command line option, 1081
 timeit command line option, 1625
 tokenize command line option, 1797
 zipapp command line option, 1653
halfdelay() (in module curses), 688
Handle (class in asyncio), 890

handle() (http.server.BaseHTTPRequestHandler method), 1276
handle() (logging.Handler method), 650
handle() (logging.handlers.QueueListener method), 684
handle() (logging.Logger method), 649
handle() (logging.NullHandler method), 673
handle() (socketserver.BaseRequestHandler method), 1270
handle() (wsgiref.simple_server.WSGIRequestHandler method), 1187
handle_accept() (asyncore.dispatcher method), 997
handle_accepted() (asyncore.dispatcher method), 997
handle_charref() (html.parser.HTMLParser method), 1113
handle_close() (asyncore.dispatcher method), 997
handle_comment() (html.parser.HTMLParser method), 1113
handle_connect() (asyncore.dispatcher method), 997
handle_data() (html.parser.HTMLParser method), 1113
handle_decl() (html.parser.HTMLParser method), 1114
handle_defect() (email.policy.Policy method), 1032
handle_endtag() (html.parser.HTMLParser method), 1113
handle_entityref() (html.parser.HTMLParser method), 1113
handle_error() (asyncore.dispatcher method), 997
handle_error() (socketserver.BaseServer method), 1269
handle_expect_100() (http.server.BaseHTTPRequestHandler method), 1276
handle_expt() (asyncore.dispatcher method), 997
handle_one_request() (http.server.BaseHTTPRequestHandler method), 1276
handle_pi() (html.parser.HTMLParser method), 1114
handle_read() (asyncore.dispatcher method), 997
handle_request() (socketserver.BaseServer method), 1268
handle_request() (xmlrpc.server.CGIXMLRPCRequestHandler method), 1305
handle_startendtag() (html.parser.HTMLParser method), 1113
handle_starttag() (html.parser.HTMLParser method), 1113
handle_timeout() (socketserver.BaseServer method), 1270
handle_write() (asyncore.dispatcher method), 997
handleError() (logging.Handler method), 650
handleError() (logging.handlers.SocketHandler method), 677
Handler (class in logging), 649
handler() (in module cgi), 1183
harmonic_mean() (in module statistics), 331
HAS_ALPN (in module ssl), 960
has_children() (symtable.SymbolTable method), 1791
has_colors() (in module curses), 687
HAS_ECDH (in module ssl), 961
has_exec() (symtable.SymbolTable method), 1792
has_extn() (smtplib.SMTP method), 1253
has_header() (csv.Sniffer method), 496
has_header() (urllib.request.Request method), 1199
has_ic() (in module curses), 687
has_il() (in module curses), 687
has_ipv6 (in module socket), 932
has_key (2to3 fixer), 1581
has_key() (in module curses), 688
has_location (importlib.machinery.ModuleSpec attribute), 1774
HAS_NEVER_CHECK_COMMON_NAME (in module ssl), 960
has_nonstandard_attr() (http.cookiejar.Cookie method), 1291
HAS_NPN (in module ssl), 961
has_option() (configparser.ConfigParser method), 514
has_option() (optparse.OptionParser method), 1881
has_section() (configparser.ConfigParser method), 514
HAS_SNI (in module ssl), 961
HAS_SSLv2 (in module ssl), 961
HAS_SSLv3 (in module ssl), 961
has_ticket (ssl.SSLSession attribute), 983
HAS_TLSv1 (in module ssl), 961
HAS_TLSv1_1 (in module ssl), 961
HAS_TLSv1_2 (in module ssl), 961
HAS_TLSv1_3 (in module ssl), 961
hasattr() (built-in function), 12
hasAttribute() (xml.dom.Element method), 1140
hasAttributeNS() (xml.dom.Element method), 1140
hasAttributes() (xml.dom.Node method), 1137
hasChildNodes() (xml.dom.Node method), 1137
hascompare (in module dis), 1819
hasconst (in module dis), 1819
hasFeature() (xml.dom.DOMImplementation method), 1136
hasfree (in module dis), 1819
hash
 built-in function, 39
hash() (built-in function), 13
hash_info (in module sys), 1667
hashable, 1904
Hashable (class in collections.abc), 228

Hashable (class in `typing`), 1459
hasHandlers() (`logging.Logger` method), 649
hash-based pyc, 1904
`hash.block_size` (in module `hashlib`), 527
`hash.digest_size` (in module `hashlib`), 526
`hashlib` (module), 525
`hasjabs` (in module `dis`), 1819
`hasjrel` (in module `dis`), 1819
`haslocal` (in module `dis`), 1819
`hasname` (in module `dis`), 1819
`HAVE_ARGUMENT` (opcode), 1818
`HAVE_DOCSTRINGS` (in module `test.support`), 1588
`HAVE_THREADS` (in module `decimal`), 311
`HCI_DATA_DIR` (in module `socket`), 933
`HCI_FILTER` (in module `socket`), 933
`HCI_TIME_STAMP` (in module `socket`), 933
`head()` (`nntplib.NNTP` method), 1248
`Header` (class in `email.header`), 1064
`header_encode()` (`email.charset.Charset` method), 1067
`header_encode_lines()` (`email.charset.Charset` method), 1067
`header_encoding` (`email.charset.Charset` attribute), 1066
`header_factory` (`email.policy.EmailPolicy` attribute), 1034
`header_fetch_parse()` (`email.policy.Compat32` method), 1036
`header_fetch_parse()` (`email.policy.EmailPolicy` method), 1034
`header_fetch_parse()` (`email.policy.Policy` method), 1033
`header_items()` (`urllib.request.Request` method), 1199
`header_max_count()` (`email.policy.EmailPolicy` method), 1034
`header_max_count()` (`email.policy.Policy` method), 1032
`header_offset` (`zipfile.ZipInfo` attribute), 480
`header_source_parse()` (`email.policy.Compat32` method), 1035
`header_source_parse()` (`email.policy.EmailPolicy` method), 1034
`header_source_parse()` (`email.policy.Policy` method), 1032
`header_store_parse()` (`email.policy.Compat32` method), 1036
`header_store_parse()` (`email.policy.EmailPolicy` method), 1034
`header_store_parse()` (`email.policy.Policy` method), 1032
`HeaderError`, 483
`HeaderParseError`, 1036
`HeaderParser` (class in `email.parser`), 1025
`HeaderRegistry` (class in `email.headerregistry`), 1041
`headers`
 MIME, 1101, 1175
`Headers` (class in `wsgiref.headers`), 1185
`headers` (`http.server.BaseHTTPRequestHandler` attribute), 1276
`headers` (`urllib.error.HTTPError` attribute), 1218
`headers` (`xmlrpc.client.ProtocolError` attribute), 1298
`heading()` (in module `turtle`), 1367
`heading()` (`tkinter.ttk.Treeview` method), 1427
`heapify()` (in module `heapq`), 232
`heapmin()` (in module `msvcrt`), 1834
`heappop()` (in module `heapq`), 232
`heappush()` (in module `heapq`), 231
`heappushpop()` (in module `heapq`), 232
`heapq` (module), 231
`heareplace()` (in module `heapq`), 232
`heloh()` (`smtplib.SMTP` method), 1252
`help`
 online, 1467
`-help`
 trace command line option, 1627
`help` (`optparse.Option` attribute), 1877
`help` (`pdb` command), 1610
`help()` (built-in function), 13
`help()` (`nntplib.NNTP` method), 1248
`herror`, 930
`hex` (`uuid.UUID` attribute), 1264
`hex()` (built-in function), 13
`hex()` (`bytarray` method), 55
`hex()` (`bytes` method), 54
`hex()` (`float` method), 34
`hex()` (`memoryview` method), 70
`hexadecimal`
 literals, 31
`hexbin()` (in module `binhex`), 1106
`hexdigest()` (`hashlib.hash` method), 527
`hexdigest()` (`hashlib.shake` method), 527
`hexdigest()` (`hmac.HMAC` method), 536
`hexdigits` (in module `string`), 97
`hexlify()` (in module `binascii`), 1108
`hexversion` (in module `sys`), 1668
`hidden()` (`curses.panel.Panel` method), 707
`hide()` (`curses.panel.Panel` method), 707
`hide()` (`tkinter.ttk.Notebook` method), 1422
`hide_cookie2` (`http.cookiejar.CookiePolicy` attribute), 1288
`hideturtle()` (in module `turtle`), 1373
`HierarchyRequestErr`, 1142
`HIGH_PRIORITY_CLASS` (in module `subprocess`), 824
`HIGHEST_PROTOCOL` (in module `pickle`), 417
`HKEY_CLASSES_ROOT` (in module `winreg`), 1839

HKEY_CURRENT_CONFIG (in module `winreg`), 1839
 HKEY_CURRENT_USER (in module `winreg`), 1839
 HKEY_DYN_DATA (in module `winreg`), 1839
 HKEY_LOCAL_MACHINE (in module `winreg`), 1839
 HKEY_PERFORMANCE_DATA (in module `winreg`), 1839
 HKEY_USERS (in module `winreg`), 1839
`hline()` (`curses.window` method), 695
`HList` (class in `tkinter.tix`), 1436
`hls_to_rgb()` (in module `colorsys`), 1333
`hmac` (module), 535
`HOME`, 386
`home()` (in module `turtle`), 1364
`home()` (`pathlib.Path` class method), 378
`HOMEDRIVE`, 386
`HOME PATH`, 386
`hook_compressed()` (in module `fileinput`), 391
`hook_encoded()` (in module `fileinput`), 391
`host` (`urllib.request.Request` attribute), 1198
`hostmask` (`ipaddress.IPv4Network` attribute), 1312
`hostmask` (`ipaddress.IPv6Network` attribute), 1315
`hostname_checks_common_name` (`ssl.SSLContext` attribute), 974
`hosts` (`netrc.netrc` attribute), 518
`hosts()` (`ipaddress.IPv4Network` method), 1313
`hosts()` (`ipaddress.IPv6Network` method), 1315
`hour` (`datetime.datetime` attribute), 185
`hour` (`datetime.time` attribute), 192
`HRESULT` (class in `ctypes`), 748
`hStdError` (`subprocess.STARTUPINFO` attribute), 823
`hStdInput` (`subprocess.STARTUPINFO` attribute), 823
`hStdOutput` (`subprocess.STARTUPINFO` attribute), 823
`hsv_to_rgb()` (in module `colorsys`), 1333
`ht()` (in module `turtle`), 1373
`HTML`, 1111, 1210
`html` (module), 1111
`html()` (in module `cgitb`), 1183
`html5` (in module `html.entities`), 1116
`HTMLCalendar` (class in `calendar`), 207
`HtmlDiff` (class in `difflib`), 128
`html.entities` (module), 1116
`HTMLParser` (class in `html.parser`), 1111
`html.parser` (module), 1111
`htonl()` (in module `socket`), 936
`hton()` (in module `socket`), 936
`HTTP`
 `http` (standard module), 1220
 `http.client` (standard module), 1222
 protocol, 1175, 1210, 1220, 1222, 1274
`HTTP` (in module `email.policy`), 1035
`http` (module), 1220
`http_error_301()` (url-
 `lib.request.HTTPRedirectHandler`
 method), 1202
`http_error_302()` (url-
 `lib.request.HTTPRedirectHandler`
 method), 1202
`http_error_303()` (url-
 `lib.request.HTTPRedirectHandler`
 method), 1202
`http_error_307()` (url-
 `lib.request.HTTPRedirectHandler`
 method), 1202
`http_error_401()` (url-
 `lib.request.HTTPBasicAuthHandler`
 method), 1203
`http_error_401()` (url-
 `lib.request.HTTPDigestAuthHandler`
 method), 1203
`http_error_407()` (url-
 `lib.request.ProxyBasicAuthHandler`
 method), 1203
`http_error_407()` (url-
 `lib.request.ProxyDigestAuthHandler`
 method), 1204
`http_error_auth_reqed()` (url-
 `lib.request.AbstractBasicAuthHandler`
 method), 1203
`http_error_auth_reqed()` (url-
 `lib.request.AbstractDigestAuthHandler`
 method), 1203
`http_error_default()` (`urllib.request.BaseHandler` method), 1201
`http_error_nnn()` (`urllib.request.BaseHandler` method), 1201
`http_open()` (`urllib.request.HTTPHandler` method), 1204
`HTTP_PORT` (in module `http.client`), 1224
`http_proxy`, 1194, 1206
`http_response()` (url-
 `lib.request.HTTPErrorProcessor` method), 1205
`http_version` (`wsgiref.handlers.BaseHandler` attribute), 1192
`HTTPBasicAuthHandler` (class in `urllib.request`), 1197
`http.client` (module), 1222
`HTTPConnection` (class in `http.client`), 1222
`http.cookiejar` (module), 1284
`HTTPCookieProcessor` (class in `urllib.request`), 1196
`http.cookies` (module), 1280
`httpd`, 1274

HTTPDefaultErrorHandler (class in `urllib.request`), 1196
 HTTPDigestAuthHandler (class in `urllib.request`), 1197
`HTTPError`, 1218
`HTTPErrorProcessor` (class in `urllib.request`), 1198
`HTTPException`, 1223
`HTTPHandler` (class in `logging.handlers`), 682
`HTTPHandler` (class in `urllib.request`), 1197
`HTTPPasswordMgr` (class in `urllib.request`), 1196
`HTTPPasswordMgrWithDefaultRealm` (class in `urllib.request`), 1196
`HTTPPasswordMgrWithPriorAuth` (class in `urllib.request`), 1196
`HTTPRedirectHandler` (class in `urllib.request`), 1196
`HTTPResponse` (class in `http.client`), 1223
`https_open()` (`urllib.request.HTTPSHandler` method), 1204
`HTTPS_PORT` (in module `http.client`), 1224
`https_response()` (`urllib.request.HTTPErrorProcessor` method), 1205
`HTTPSSConnection` (class in `http.client`), 1222
`HTTPServer` (class in `http.server`), 1275
`http.server` (module), 1274
`HTTPSSHandler` (class in `urllib.request`), 1197
`HTTPStatus` (class in `http`), 1220
`hypot()` (in module `math`), 288

|

`I` (in module `re`), 114
`-i` list
 compileall command line option, 1803
 I/O control
 buffering, 18, 940
 POSIX, 1850
 tty, 1850
 UNIX, 1853
`iadd()` (in module `operator`), 365
`iand()` (in module `operator`), 365
`iconcat()` (in module `operator`), 365
`id` (`ssl.SSLSession` attribute), 982
`id()` (built-in function), 13
`id()` (`unittest.TestCase` method), 1510
`idcok()` (`curses.window` method), 695
`ident` (`select.kevent` attribute), 990
`ident` (`threading.Thread` attribute), 754
`identchars` (`cmd.Cmd` attribute), 1394
`identify()` (`tkinter.ttk.Notebook` method), 1422
`identify()` (`tkinter.ttk.Treeview` method), 1427
`identify()` (`tkinter.ttk.Widget` method), 1418
`identify_column()` (`tkinter.ttk.Treeview` method), 1427
`identify_element()` (`tkinter.ttk.Treeview` method), 1428
`identify_region()` (`tkinter.ttk.Treeview` method), 1428
`identify_row()` (`tkinter.ttk.Treeview` method), 1427
`idioms` (2to3 fixer), 1581
`IDLE`, 1438, 1904
`IDLE_PRIORITY_CLASS` (in module `subprocess`), 824
`IDLESTARTUP`, 1445
`idlok()` (`curses.window` method), 695
`if`
 statement, 29
`if_indextoname()` (in module `socket`), 938
`if_nameindex()` (in module `socket`), 938
`if_nametoindex()` (in module `socket`), 938
`ifloordiv()` (in module `operator`), 365
`iglob()` (in module `glob`), 403
`ignorableWhitespace()` (`xml.sax.handler.ContentHandler` method), 1156
`ignore` (`pdb` command), 1611
`ignore_errors()` (in module `codecs`), 161
`IGNORE_EXCEPTION_DETAIL` (in module `doctest`), 1476
`ignore_patterns()` (in module `shutil`), 408
`IGNORECASE` (in module `re`), 114
`-ignore-dir=<dir>`
 trace command line option, 1628
`-ignore-module=<mod>`
 trace command line option, 1628
`ihave()` (`nntplib.NNTP` method), 1249
`IISCGIHandler` (class in `wsgiref.handlers`), 1189
`ilshift()` (in module `operator`), 365
`imag` (`numbers.Complex` attribute), 281
`imap()` (`multiprocessing.pool.Pool` method), 792
`IMAP4`
 protocol, 1236
`IMAP4` (class in `imaplib`), 1236
`IMAP4_SSL`
 protocol, 1236
`IMAP4_SSL` (class in `imaplib`), 1237
`IMAP4_stream`
 protocol, 1236
`IMAP4_stream` (class in `imaplib`), 1237
`IMAP4.abort`, 1237
`IMAP4.error`, 1237
`IMAP4.readonly`, 1237
`imap_unordered()` (`multiprocessing.pool.Pool` method), 792
`imaplib` (module), 1236
`imatmul()` (in module `operator`), 365
`imghdr` (module), 1334
`immedok()` (`curses.window` method), 695
`immutable`, 1904

sequence types, 39
 imod() (in module operator), 365
 imp
 module, 25
 imp (module), 1890
 ImpImporter (class in pkgutil), 1753
 impl_detail() (in module test.support), 1594
 implementation (in module sys), 1668
 ImpLoader (class in pkgutil), 1754
 import
 statement, 25, 1742, 1890
 import (2to3 fixer), 1582
 import path, 1904
 import_fresh_module() (in module test.support), 1594
 IMPORT_FROM (opcode), 1816
 import_module() (in module importlib), 1760
 import_module() (in module test.support), 1594
 IMPORT_NAME (opcode), 1815
 IMPORT_STAR (opcode), 1813
 importer, 1904
 ImportError, 88
 importing, 1904
 importlib (module), 1759
 importlib.abc (module), 1762
 importlib.machinery (module), 1770
 importlib.resources (module), 1768
 importlib.util (module), 1774
 imports (2to3 fixer), 1582
 imports2 (2to3 fixer), 1582
 ImportWarning, 94
 ImproperConnectionState, 1223
 imul() (in module operator), 365
 in
 operator, 30, 37
 in_dll() (ctypes._CData method), 745
 in_table_a1() (in module stringprep), 144
 in_table_b1() (in module stringprep), 144
 in_table_c3() (in module stringprep), 145
 in_table_c4() (in module stringprep), 145
 in_table_c5() (in module stringprep), 145
 in_table_c6() (in module stringprep), 145
 in_table_c7() (in module stringprep), 145
 in_table_c8() (in module stringprep), 145
 in_table_c9() (in module stringprep), 145
 in_table_c11() (in module stringprep), 145
 in_table_c11_c12() (in module stringprep), 145
 in_table_c12() (in module stringprep), 145
 in_table_c21() (in module stringprep), 145
 in_table_c21_c22() (in module stringprep), 145
 in_table_c22() (in module stringprep), 145
 in_table_d1() (in module stringprep), 145
 in_table_d2() (in module stringprep), 145
 in_transaction (sqlite3.Connection attribute), 441
 inch() (curses.window method), 695
 inclusive (tracemalloc.DomainFilter attribute), 1635
 inclusive (tracemalloc.Filter attribute), 1636
 Incomplete, 1109
 IncompleteRead, 1223
 IncompleteReadError, 874
 increment_lineno() (in module ast), 1789
 IncrementalDecoder (class in codecs), 162
 incrementaldecoder (codecs.CodecInfo attribute), 157
 IncrementalEncoder (class in codecs), 162
 incrementalencoder (codecs.CodecInfo attribute), 157
 IncrementalNewlineDecoder (class in io), 599
 IncrementalParser (class in xml.sax.xmlreader), 1159
 indent (doctest.Example attribute), 1485
 INDENT (in module token), 1794
 indent() (in module textwrap), 140
 IndentationError, 91
 index() (array.array method), 239
 index() (bytearray method), 57
 index() (bytes method), 57
 index() (collections.deque method), 217
 index() (in module operator), 360
 index() (sequence method), 37
 index() (str method), 46
 index() (tkinter.ttk.Notebook method), 1422
 index() (tkinter.ttk.Treeview method), 1428
 IndexError, 89
 indexOf() (in module operator), 362
 IndexSizeErr, 1142
 inet_aton() (in module socket), 936
 inet_ntoa() (in module socket), 937
 inet_ntop() (in module socket), 937
 inet_pton() (in module socket), 937
 Inexact (class in decimal), 312
 inf (in module cmath), 292
 inf (in module math), 289
 infile
 json.tool command line option, 1081
 infile (shlex.shlex attribute), 1400
 Infinity, 11
 infj (in module cmath), 292
 –info
 zipapp command line option, 1653
 info() (dis.Bytecode method), 1807
 info() (gettext.NullTranslations method), 1344
 info() (in module logging), 657
 info() (logging.Logger method), 648
 infolist() (zipfile.ZipFile method), 476
 .ini
 file, 499
 ini file, 499
 init() (in module mimetypes), 1101

init_color() (in module curses), 688
init_database() (in module msilib), 1827
init_pair() (in module curses), 688
inited (in module mimetypes), 1101
initgroups() (in module os), 545
initial_indent (textwrap.TextWrapper attribute), 141
initser() (in module curses), 688
inode() (os.DirEntry method), 566
INPLACE_ADD (opcode), 1811
INPLACE_AND (opcode), 1812
INPLACE_FLOOR_DIVIDE (opcode), 1811
INPLACE_LSHIFT (opcode), 1812
INPLACE_MATRIX_MULTIPLY (opcode), 1811
INPLACE_MODULO (opcode), 1811
INPLACE_MULTIPLY (opcode), 1811
INPLACE_OR (opcode), 1812
INPLACE_POWER (opcode), 1811
INPLACE_RSHIFT (opcode), 1812
INPLACE_SUBTRACT (opcode), 1812
INPLACE_TRUE_DIVIDE (opcode), 1811
INPLACE_XOR (opcode), 1812
input (2to3 fixer), 1582
input() (built-in function), 13
input() (in module fileinput), 390
input_charset (email.charset.Charset attribute), 1066
input_codec (email.charset.Charset attribute), 1066
InputOnly (class in tkinter.tix), 1437
InputSource (class in xml.sax.xmlreader), 1159
insch() (curses.window method), 695
insdelln() (curses.window method), 695
insert() (array.array method), 239
insert() (collections.deque method), 217
insert() (sequence method), 39
insert() (tkinter.ttk.Notebook method), 1422
insert() (tkinter.ttk.Treeview method), 1428
insert() (xml.etree.ElementTree.Element method), 1129
insert_text() (in module readline), 146
insertBefore() (xml.dom.Node method), 1137
insertln() (curses.window method), 695
insnstr() (curses.window method), 695
insort() (in module bisect), 236
insort_left() (in module bisect), 236
insort_right() (in module bisect), 236
inspect (module), 1726
inspect command line option
 -details, 1742
InspectLoader (class in importlib.abc), 1765
instr() (curses.window method), 695
install() (gettext.NullTranslations method), 1344
install() (in module gettext), 1343
install_opener() (in module urllib.request), 1194
install_scripts() (venv.EnvBuilder method), 1647
installHandler() (in module unittest), 1521
instate() (tkinter.ttk.Widget method), 1418
instr() (curses.window method), 696
instream (shlex.shlex attribute), 1400
Instruction (class in dis), 1809
Instruction.arg (in module dis), 1809
Instruction.argrepr (in module dis), 1809
Instruction.argval (in module dis), 1809
Instruction.is_jump_target (in module dis), 1810
Instruction.offset (in module dis), 1809
Instruction.opcode (in module dis), 1809
Instruction.opname (in module dis), 1809
Instruction.starts_line (in module dis), 1810
int
 built-in function, 31
int (built-in class), 14
int (uuid.UUID attribute), 1264
Int2AP() (in module imaplib), 1238
int_info (in module sys), 1668
integer
 literals, 31
 object, 30
 types, operations on, 32
Integral (class in numbers), 282
Integrated Development Environment, 1438
IntegrityError, 452
Intel/DVI ADPCM, 1321
IntEnum (class in enum), 261
interact (pdb command), 1613
interact() (code.InteractiveConsole method), 1748
interact() (in module code), 1747
interact() (telnetlib.Telnet method), 1261
interactive, 1904
InteractiveConsole (class in code), 1747
InteractiveInterpreter (class in code), 1747
intern (2to3 fixer), 1582
intern() (in module sys), 1669
internal_attr (zipfile.ZipInfo attribute), 480
Internalaldate2tuple() (in module imaplib), 1237
internalSubset (xml.dom.DocumentType attribute), 1138
Internet, 1173
interpolation
 bytearray (%), 66
 bytes (%), 66
interpolation, string (%), 51
InterpolationDepthError, 517
InterpolationError, 517
InterpolationMissingOptionError, 517
InterpolationSyntaxError, 517
interpreted, 1905
interpreter prompts, 1671
interpreter shutdown, 1905

interpreter_requires_environment() (in module test.support.script_helper), 1598
 interrupt() (sqlite3.Connection method), 443
 interrupt_main() (in module _thread), 836
 InterruptedError, 93
 intersection() (frozenset method), 75
 intersection_update() (frozenset method), 76
 IntFlag (class in enum), 261
 intro (cmd.Cmd attribute), 1394
 InuseAttributeErr, 1142
 inv() (in module operator), 361
 InvalidAccessErr, 1142
 invalidate_caches() (importlib.abc.MetaPathFinder method), 1762
 invalidate_caches() (importlib.abc.PathEntryFinder method), 1763
 invalidate_caches() (importlib.machinery.FileFinder method), 1772
 invalidate_caches() (importlib.machinery.PathFinder method), 1771
 invalidate_caches() (in module importlib), 1761
 --invalidation-mode [timestamp|checked-hash|unchecked-hash]
 compileall command line option, 1804
 InvalidCharacterErr, 1142
 InvalidModificationErr, 1142
 InvalidOperation (class in decimal), 312
 InvalidStateErr, 1142
 InvalidStateError, 874
 InvalidURL, 1223
 invert() (in module operator), 361
 IO (class in typing), 1463
 io (module), 588
 IOBase (class in io), 590
 ioctl() (in module fcntl), 1854
 ioctl() (socket.socket method), 940
 IOCTL_VMSOCKETS_GET_LOCAL_CID (in module socket), 932
 IOError, 92
 ior() (in module operator), 366
 io.StringIO
 object, 44
 ip (ipaddress.IPv4Interface attribute), 1317
 ip (ipaddress.IPv6Interface attribute), 1317
 ip_address() (in module ipaddress), 1307
 ip_interface() (in module ipaddress), 1307
 ip_network() (in module ipaddress), 1307
 ipaddress (module), 1306
 ipow() (in module operator), 366
 ipv4_mapped (ipaddress.IPv6Address attribute), 1310
 IPv4Address (class in ipaddress), 1307
 IPv4Interface (class in ipaddress), 1317
 IPv4Network (class in ipaddress), 1311
 IPV6_ENABLED (in module test.support), 1587
 IPv6Address (class in ipaddress), 1309
 IPv6Interface (class in ipaddress), 1317
 IPv6Network (class in ipaddress), 1314
 irshift() (in module operator), 366
 is
 operator, 30
 is not
 operator, 30
 is_() (in module operator), 360
 is_absolute() (pathlib.PurePath method), 375
 is_alive() (multiprocessing.Process method), 771
 is_alive() (threading.Thread method), 754
 is_android (in module test.support), 1587
 is_assigned() (symtable.Symbol method), 1792
 is_attachment() (email.message.EmailMessage method), 1019
 is_authenticated() (urllib.request.HTTPPasswordMgrWithPriorAuth method), 1203
 is_block_device() (pathlib.Path method), 380
 is_blocked() (http.cookiejar.DefaultCookiePolicy method), 1289
 is_canonical() (decimal.Context method), 308
 is_canonical() (decimal.Decimal method), 301
 is_char_device() (pathlib.Path method), 380
 IS_CHARACTER_JUNK() (in module difflib), 132
 is_check_supported() (in module lzma), 472
 is_closed() (asyncio.loop method), 877
 is_closing() (asyncio.BaseTransport method), 900
 is_closing() (asyncio.StreamWriter method), 859
 is_dataclass() (in module dataclasses), 1693
 is_declared_global() (symtable.Symbol method), 1792
 is_dir() (os.DirEntry method), 566
 is_dir() (pathlib.Path method), 379
 is_dir() (zipfile.ZipInfo method), 480
 is_enabled() (in module faulthandler), 1606
 is_expired() (http.cookiejar.Cookie method), 1291
 is_fifo() (pathlib.Path method), 380
 is_file() (os.DirEntry method), 566
 is_file() (pathlib.Path method), 380
 is_finalizing() (in module sys), 1669
 is_finite() (decimal.Context method), 308
 is_finite() (decimal.Decimal method), 301
 is_free() (symtable.Symbol method), 1792
 is_global (ipaddress.IPv4Address attribute), 1308
 is_global (ipaddress.IPv6Address attribute), 1309
 is_global() (symtable.Symbol method), 1792
 is_hop_by_hop() (in module wsgiref.util), 1185
 is_imported() (symtable.Symbol method), 1792
 is_infinite() (decimal.Context method), 308
 is_infinite() (decimal.Decimal method), 301

is_integer() (float method), 34
is_jython (in module test.support), 1587
IS_LINE_JUNK() (in module difflib), 132
is_linetouched() (curses.window method), 696
is_link_local (ipaddress.IPv4Address attribute), 1309
is_link_local (ipaddress.IPv4Network attribute), 1312
is_link_local (ipaddress.IPv6Address attribute), 1309
is_link_local (ipaddress.IPv6Network attribute), 1315
is_local() (symtable.Symbol method), 1792
is_loopback (ipaddress.IPv4Address attribute), 1309
is_loopback (ipaddress.IPv4Network attribute), 1312
is_loopback (ipaddress.IPv6Address attribute), 1309
is_loopback (ipaddress.IPv6Network attribute), 1315
is_mount() (pathlib.Path method), 380
is_multicast (ipaddress.IPv4Address attribute), 1308
is_multicast (ipaddress.IPv4Network attribute), 1312
is_multicast (ipaddress.IPv6Address attribute), 1309
is_multicast (ipaddress.IPv6Network attribute), 1315
is_multipart() (email.message.EmailMessage method), 1015
is_multipart() (email.message.Message method), 1054
is_namespace() (symtable.Symbol method), 1792
is_nan() (decimal.Context method), 308
is_nan() (decimal.Decimal method), 301
is_nested() (symtable.SymbolTable method), 1791
is_normal() (decimal.Context method), 308
is_normal() (decimal.Decimal method), 301
is_not() (in module operator), 360
is_not_allowed() (http.cookiejar.DefaultCookiePolicy method), 1289
is_optimized() (symtable.SymbolTable method), 1791
is_package() (importlib.abc.InspectLoader method), 1766
is_package() (importlib.abc.SourceLoader method), 1768
is_package() (importlib.machinery.ExtensionFileLoader method), 1773
is_package() (importlib.machinery.SourceFileLoader method), 1772
is_package() (importlib.machinery.SourcelessFileLoader method), 1772
is_package() (zipimport.zipimporter method), 1752
is_parameter() (symtable.Symbol method), 1792
is_private (ipaddress.IPv4Address attribute), 1308
is_private (ipaddress.IPv6Address attribute), 1309
is_private (ipaddress.IPv6Network attribute), 1315
is_python_build() (in module sysconfig), 1679
is_qnan() (decimal.Context method), 308
is_qnan() (decimal.Decimal method), 302
is_reading() (asyncio.ReadTransport method), 901
is_referenced() (symtable.Symbol method), 1792
is_reserved (ipaddress.IPv4Address attribute), 1309
is_reserved (ipaddress.IPv4Network attribute), 1312
is_reserved (ipaddress.IPv6Address attribute), 1309
is_reserved (ipaddress.IPv6Network attribute), 1315
is_reserved() (pathlib.PurePath method), 375
is_resource() (importlib.abc.ResourceReader method), 1765
is_resource() (in module importlib.resources), 1769
is_resource_enabled() (in module test.support), 1588
is_running() (asyncio.loop method), 877
is_safe (uuid.UUID attribute), 1264
is_serving() (asyncio.Server method), 891
is_set() (asyncio.Event method), 864
is_set() (threading.Event method), 760
is_signed() (decimal.Context method), 308
is_signed() (decimal.Decimal method), 302
is_site_local (ipaddress.IPv6Address attribute), 1310
is_site_local (ipaddress.IPv6Network attribute), 1315
is_snan() (decimal.Context method), 309
is_snan() (decimal.Decimal method), 302
is_socket() (pathlib.Path method), 380
is_subnormal() (decimal.Context method), 309
is_subnormal() (decimal.Decimal method), 302
is_symlink() (os.DirEntry method), 566
is_symlink() (pathlib.Path method), 380
is_tarfile() (in module tarfile), 483
is_term_resized() (in module curses), 688
is_tracing() (in module tracemalloc), 1635
is_tracked() (in module gc), 1724
is_unspecified (ipaddress.IPv4Address attribute), 1309
is_unspecified (ipaddress.IPv4Network attribute), 1312
is_unspecified (ipaddress.IPv6Address attribute), 1309
is_unspecified (ipaddress.IPv6Network attribute), 1315
is_wintouched() (curses.window method), 696
is_zero() (decimal.Context method), 309
is_zero() (decimal.Decimal method), 302
is_zipfile() (in module zipfile), 474
isabs() (in module os.path), 387
isabstract() (in module inspect), 1730

IsADirectoryError, 93
 isalnum() (bytearray method), 62
 isalnum() (bytes method), 62
 isalnum() (in module curses.ascii), 705
 isalnum() (str method), 46
 isalpha() (bytearray method), 62
 isalpha() (bytes method), 62
 isalpha() (in module curses.ascii), 705
 isalpha() (str method), 46
 isascii() (bytearray method), 62
 isascii() (bytes method), 62
 isascii() (in module curses.ascii), 705
 isascii() (str method), 46
 isasyncgen() (in module inspect), 1729
 isasyncgenfunction() (in module inspect), 1729
 isatty() (chunk.Chunk method), 1332
 isatty() (in module os), 550
 isatty() (io.IOBase method), 591
 isawaitable() (in module inspect), 1729
 isblank() (in module curses.ascii), 705
 isblk() (tarfile.TarInfo method), 488
 isbuiltin() (in module inspect), 1729
 ischr() (tarfile.TarInfo method), 488
 isclass() (in module inspect), 1728
 isclose() (in module cmath), 292
 isclose() (in module math), 285
 iscntrl() (in module curses.ascii), 705
 iscode() (in module inspect), 1729
 iscoroutine() (in module asyncio), 856
 iscoroutine() (in module inspect), 1729
 isctrl() (in module curses.ascii), 706
 isDaemon() (threading.Thread method), 754
 isdatadescriptor() (in module inspect), 1730
 isdecimal() (str method), 46
 isdev() (tarfile.TarInfo method), 488
 isdigit() (bytearray method), 62
 isdigit() (bytes method), 62
 isdigit() (in module curses.ascii), 705
 isdigit() (str method), 46
 isdir() (in module os.path), 387
 isdir() (tarfile.TarInfo method), 488
 isdisjoint() (frozenset method), 75
 isdown() (in module turtle), 1370
 iselement() (in module xml.etree.ElementTree), 1126
 isenabled() (in module gc), 1723
 isEnabledFor() (logging.Logger method), 647
 isendwin() (in module curses), 688
 ISEOF() (in module token), 1794
 isexpr() (in module parser), 1783
 isexpr() (parser.ST method), 1784
 isinfo() (tarfile.TarInfo method), 488
 isfile() (in module os.path), 387
 isfile() (tarfile.TarInfo method), 488
 isfinite() (in module cmath), 292
 isfinite() (in module math), 286
 isfirstline() (in module fileinput), 390
 isframe() (in module inspect), 1729
 isfunction() (in module inspect), 1728
 isfuture() (in module asyncio), 895
 isgenerator() (in module inspect), 1729
 isgeneratorfunction() (in module inspect), 1729
 isgetsetdescriptor() (in module inspect), 1730
 isgraph() (in module curses.ascii), 705
 isidentifier() (str method), 47
 isinf() (in module cmath), 292
 isinf() (in module math), 286
 isinstance (2to3 fixer), 1582
 isinstance() (built-in function), 14
 iskeyword() (in module keyword), 1795
 isleap() (in module calendar), 209
 islice() (in module itertools), 343
 islink() (in module os.path), 387
 islnk() (tarfile.TarInfo method), 488
 islower() (bytearray method), 62
 islower() (bytes method), 62
 islower() (in module curses.ascii), 706
 islower() (str method), 47
 ismemberdescriptor() (in module inspect), 1730
 ismeta() (in module curses.ascii), 706
 ismethod() (in module inspect), 1728
 ismethoddescriptor() (in module inspect), 1730
 ismodule() (in module inspect), 1728
 ismount() (in module os.path), 387
 isnan() (in module cmath), 292
 isnan() (in module math), 286
 ISNONTERMINAL() (in module token), 1793
 isnumeric() (str method), 47
 isocalendar() (datetime.date method), 181
 isocalendar() (datetime.datetime method), 189
 isoformat() (datetime.date method), 181
 isoformat() (datetime.datetime method), 189
 isoformat() (datetime.time method), 193
 isolation_level (sqlite3.Connection attribute), 441
 isoweekday() (datetime.date method), 181
 isoweekday() (datetime.datetime method), 189
 isprint() (in module curses.ascii), 706
 isprintable() (str method), 47
 ispunct() (in module curses.ascii), 706
 isreadable() (in module pprint), 255
 isreadable() (pprint.PrettyPrinter method), 255
 isrecursive() (in module pprint), 255
 isrecursive() (pprint.PrettyPrinter method), 255
 isreg() (tarfile.TarInfo method), 488
 isReservedKey() (http.cookies.Morsel method), 1282
 isroutine() (in module inspect), 1729
 isSameNode() (xml.dom.Node method), 1137

isspace() (bytearray method), 63
isspace() (bytes method), 63
isspace() (in module curses.ascii), 706
isspace() (str method), 47
isstdin() (in module fileinput), 390
issubclass() (built-in function), 14
issubset() (frozenset method), 75
issuite() (in module parser), 1783
issuite() (parser.ST method), 1784
issuperset() (frozenset method), 75
issym() (tarfile.TarInfo method), 488
ISTRMINAL() (in module token), 1793
istitle() (bytearray method), 63
istitle() (bytes method), 63
istitle() (str method), 47
istraceback() (in module inspect), 1729
isub() (in module operator), 366
isupper() (bytearray method), 63
isupper() (bytes method), 63
isupper() (in module curses.ascii), 706
isupper() (str method), 47
isvisible() (in module turtle), 1373
isxdigit() (in module curses.ascii), 706
item() (tkinter.ttk.Treeview method), 1428
item() (xml.dom.NamedNodeMap method), 1141
item() (xml.dom.NodeList method), 1138
itemgetter() (in module operator), 363
items() (configparser.ConfigParser method), 515
items() (contextvars.Context method), 842
items() (dict method), 78
items() (email.message.EmailMessage method), 1017
items() (email.message.Message method), 1056
items() (mailbox.Mailbox method), 1084
items() (types.MappingProxyType method), 251
items() (xml.etree.ElementTree.Element method), 1128
itemsize (array.array attribute), 239
itemsize (memoryview attribute), 74
ItemsView (class in collections.abc), 229
ItemsView (class in typing), 1460
iter() (built-in function), 14
iter() (xml.etree.ElementTree.Element method), 1129
iter() (xml.etree.ElementTree.ElementTree method), 1130
iter_attachments() (email.message.EmailMessage method), 1021
iter_child_nodes() (in module ast), 1790
iter_fields() (in module ast), 1790
iter_importers() (in module pkgutil), 1754
iter_modules() (in module pkgutil), 1754
iter_parts() (email.message.EmailMessage method), 1021
iter_unpack() (in module struct), 152
iter_unpack() (struct.Struct method), 156
iterable, 1905
Iterable (class in collections.abc), 228
Iterable (class in typing), 1459
iterator, 1905
Iterator (class in collections.abc), 229
Iterator (class in typing), 1459
iterator protocol, 36
iterdecode() (in module codecs), 159
iterdir() (pathlib.Path method), 380
iterdump() (sqlite3.Connection method), 446
iterencode() (in module codecs), 158
iterencode() (json.JSONEncoder method), 1078
iterfind() (xml.etree.ElementTree.Element method), 1129
iterfind() (xml.etree.ElementTree.ElementTree method), 1130
iteritems() (mailbox.Mailbox method), 1084
iterkeys() (mailbox.Mailbox method), 1084
itermonthdates() (calendar.Calendar method), 206
itermonthdays() (calendar.Calendar method), 206
itermonthdays2() (calendar.Calendar method), 206
itermonthdays3() (calendar.Calendar method), 206
itermonthdays4() (calendar.Calendar method), 207
iterparse() (in module xml.etree.ElementTree), 1126
iterertext() (xml.etree.ElementTree.Element method), 1129
itertools (2to3 fixer), 1582
itertools (module), 337
itertools_imports (2to3 fixer), 1582
itervalues() (mailbox.Mailbox method), 1084
iterweekdays() (calendar.Calendar method), 206
ITIMER_PROF (in module signal), 1004
ITIMER_REAL (in module signal), 1004
ITIMER_VIRTUAL (in module signal), 1004
ItimerError, 1004
itruediv() (in module operator), 366
ixor() (in module operator), 366

J

-j N
compileall command line option, 1804
Jansen, Jack, 1110
java_ver() (in module platform), 710
join() (asyncio.Queue method), 872
join() (bytearray method), 57
join() (bytes method), 57
join() (in module os.path), 387
join() (multiprocessing.JoinableQueue method), 775
join() (multiprocessing.pool.Pool method), 792
join() (multiprocessing.Process method), 770
join() (queue.Queue method), 834
join() (str method), 47
join() (threading.Thread method), 754

join_thread() (in module test.support), 1595
 join_thread() (multiprocessing.Queue method), 774
 JoinableQueue (class in multiprocessing), 775
 joinpath() (pathlib.PurePath method), 375
 js_output() (http.cookies.BaseCookie method), 1281
 js_output() (http.cookies.Morsel method), 1282
 json (module), 1072
 JSONDecodeError, 1079
 JSONDecoder (class in json), 1076
 JSONEncoder (class in json), 1077
 json.tool (module), 1081
 json.tool command line option
 -h, --help, 1081
 infile, 1081
 outfile, 1081
 --sort-keys, 1081
 jump (pdb command), 1612
 JUMP_ABSOLUTE (opcode), 1816
 JUMP_FORWARD (opcode), 1816
 JUMP_IF_FALSE_OR_POP (opcode), 1816
 JUMP_IF_TRUE_OR_POP (opcode), 1816

K

-k
 unittest command line option, 1495
 kbhit() (in module msvcrt), 1833
 KDEDIR, 1175
 kevent() (in module select), 986
 key (http.cookies.Morsel attribute), 1282
 key function, 1905
 KEY_ALL_ACCESS (in module winreg), 1840
 KEY_CREATE_LINK (in module winreg), 1840
 KEY_CREATE_SUB_KEY (in module winreg), 1840
 KEY_ENUMERATE_SUB_KEYS (in module winreg), 1840
 KEY_EXECUTE (in module winreg), 1840
 KEY_NOTIFY (in module winreg), 1840
 KEY_QUERY_VALUE (in module winreg), 1840
 KEY_READ (in module winreg), 1840
 KEY_SET_VALUE (in module winreg), 1840
 KEY_WOW64_32KEY (in module winreg), 1840
 KEY_WOW64_64KEY (in module winreg), 1840
 KEY_WRITE (in module winreg), 1840
 KeyboardInterrupt, 89
 KeyError, 89
 keyname() (in module curses), 688
 keypad() (curses.window method), 696
 keyrefs() (weakref.WeakKeyDictionary method), 242
 keys() (contextvars.Context method), 841
 keys() (dict method), 78
 keys() (email.message.EmailMessage method), 1017
 keys() (email.message.Message method), 1056
 keys() (mailbox.Mailbox method), 1084
 keys() (sqlite3.Row method), 451
 keys() (types.MappingProxyType method), 251
 keys() (xml.etree.ElementTree.Element method), 1128
 KeysView (class in collections.abc), 229
 KeysView (class in typing), 1460
 keyword (module), 1795
 keyword argument, 1905
 keywords (functools.partial attribute), 359
 kill() (asyncio.asyncio.subprocess.Process method), 869
 kill() (asyncio.SubprocessTransport method), 902
 kill() (in module os), 578
 kill() (multiprocessing.Process method), 772
 kill() (subprocess.Popen method), 822
 kill_python()
 (in module test.support.script_helper), 1599
 killchar() (in module curses), 688
 killpg() (in module os), 578
 kind (inspect.Parameter attribute), 1733
 knownfiles (in module mimetypes), 1101
 kqueue() (in module select), 986
 KqueueSelector (class in selectors), 995
 kwargs (inspect.BoundArguments attribute), 1735
 kwlist (in module keyword), 1795

L

-l
 compileall command line option, 1803
 L (in module re), 114
 -l <tarfile>
 tarfile command line option, 489
 -l <zippyfile>
 zippyfile command line option, 481
 -l, --indentlevel=<num>
 pickletools command line option, 1820
 -l, --listfuncs
 trace command line option, 1628
 LabelEntry (class in tkinter.tix), 1434
 LabelFrame (class in tkinter.tix), 1434
 lambda, 1905
 LambdaType (in module types), 249
 LANG, 1341, 1343, 1350, 1353
 LANGUAGE, 1341, 1343
 language
 C, 30, 31
 large files, 1845
 LargeZipFile, 474
 last() (nntplib.NNTP method), 1248
 last_accepted (multiprocessing.connection.Listener attribute), 794
 last_traceback (in module sys), 1669
 last_type (in module sys), 1669
 last_value (in module sys), 1669

lastChild (xml.dom.Node attribute), 1137
lastcmd (cmd.Cmd attribute), 1394
lastgroup (re.Match attribute), 122
lastindex (re.Match attribute), 122
lastResort (in module logging), 660
lastrowid (sqlite3.Cursor attribute), 450
layout() (tkinter.ttk.Style method), 1431
lazycache() (in module linecache), 405
LazyLoader (class in importlib.util), 1776
LBRACE (in module token), 1794
LBYL, **1906**
LC_ALL, 1341, 1343
LC_ALL (in module locale), 1355
LC_COLLATE (in module locale), 1355
LC_CTYPE (in module locale), 1355
LC_MESSAGES, 1341, 1343
LC_MESSAGES (in module locale), 1355
LC_MONETARY (in module locale), 1355
LC_NUMERIC (in module locale), 1355
LC_TIME (in module locale), 1355
lchflags() (in module os), 560
lchmod() (in module os), 560
lchmod() (pathlib.Path method), 381
lchown() (in module os), 560
ldexp() (in module math), 286
lggettext() (in module gettext), 1342
ldnggettext() (in module gettext), 1342
le() (in module operator), 360
leapdays() (in module calendar), 209
leaveok() (curses.window method), 696
left (filecmp.dircmp attribute), 397
left() (in module turtle), 1362
left_list (filecmp.dircmp attribute), 397
left_only (filecmp.dircmp attribute), 398
LEFTSHIFT (in module token), 1794
LEFTSHIFTEQUAL (in module token), 1794
len
 built-in function, 37, 77
len() (built-in function), 15
length (xml.dom.NamedNodeMap attribute), 1141
length (xml.dom.NodeList attribute), 1138
length_hint() (in module operator), 362
LESS (in module token), 1794
LESSEQUAL (in module token), 1794
lexists() (in module os.path), 386
lgamma() (in module math), 289
lggettext() (gettext.GNUTranslations method), 1345
lggettext() (gettext.NullTranslations method), 1344
lggettext() (in module gettext), 1342
lib2to3 (module), 1584
libc_ver() (in module platform), 711
library (in module dbm.ndbm), 436
library (ssl.SSLSError attribute), 952
LibraryLoader (class in ctypes), 738
license (built-in variable), 28
LifoQueue (class in asyncio), 872
LifoQueue (class in queue), 833
light-weight processes, 836
limit_denominator() (fractions.Fraction method), 322
LimitOverrunError, 875
lin2adpcm() (in module audioop), 1322
lin2alaw() (in module audioop), 1322
lin2lin() (in module audioop), 1322
lin2ulaw() (in module audioop), 1323
line() (msilib.Dialog method), 1832
line_buffering (io.TextIOWrapper attribute), 598
line_num (csv.csvreader attribute), 498
line-buffered I/O, 18
linecache (module), 405
lineno (ast.AST attribute), 1786
lineno (doctest.DocTest attribute), 1485
lineno (doctest.Example attribute), 1485
lineno (json.JSONDecodeError attribute), 1079
lineno (pyclbr.Class attribute), 1801
lineno (pyclbr.Function attribute), 1800
lineno (re.error attribute), 118
lineno (shlex.shlex attribute), 1400
lineno (traceback.TracebackException attribute), 1718
lineno (tracemalloc.Filter attribute), 1636
lineno (tracemalloc.Frame attribute), 1636
lineno (xml.parsers.expat.ExpatError attribute), 1168
lineno() (in module fileinput), 390
LINES, 687, 691, 692
lines (os.terminal_size attribute), 556
linesep (email.policy.Policy attribute), 1031
linesep (in module os), 586
lineterminator (csv.Dialect attribute), 497
LineTooLong, 1223
link() (in module os), 560
linkname (tarfile.TarInfo attribute), 487
linux_distribution() (in module platform), 711
list, **1906**
 object, 39, 40
 type, operations on, 39
list (built-in class), 40
List (class in typing), 1460
list (pdb command), 1612
-list <tarfile>
 tarfile command line option, 489
-list <zipfile>
 zipfile command line option, 481
list comprehension, **1906**
list() (imaplib.IMAP4 method), 1239
list() (multiprocessing.managers.SyncManager method), 786

list() (nntplib.NNTP method), 1246
 list() (poplib.POP3 method), 1235
 list() (tarfile.TarFile method), 485
 LIST_APEND (opcode), 1813
 list_dialects() (in module csv), 494
 list_folders() (mailbox.Maildir method), 1086
 list_folders() (mailbox.MH method), 1088
 listdir() (in module os), 561
 listen() (asyncore.dispatcher method), 998
 listen() (in module logging.config), 662
 listen() (in module turtle), 1381
 listen() (socket.socket method), 940
 Listener (class in multiprocessing.connection), 794
 listMethods() (xmlrpc.client.ServerProxy.system method), 1294
 ListNoteBook (class in tkinter.tix), 1436
 listxattr() (in module os), 575
 literal_eval() (in module ast), 1789
 literals
 binary, 31
 complex number, 31
 floating point, 31
 hexadecimal, 31
 integer, 31
 numeric, 31
 octal, 31
 LittleEndianStructure (class in ctypes), 748
 ljust() (bytearray method), 59
 ljust() (bytes method), 59
 ljust() (str method), 47
 LK_LOCK (in module msvcr), 1833
 LK_NBLCK (in module msvcr), 1833
 LK_NBRLCK (in module msvcr), 1833
 LK_RLCK (in module msvcr), 1833
 LK_UNLCK (in module msvcr), 1833
 ll (pdb command), 1612
 LMTP (class in smtplib), 1251
 ln() (decimal.Context method), 309
 ln() (decimal.Decimal method), 302
 LNAME, 685
 lngettext() (gettext.GNUTranslations method), 1345
 lngettext() (gettext.NullTranslations method), 1344
 lngettext() (in module gettext), 1342
 load() (http.cookiejar.FileCookieJar method), 1286
 load() (http.cookies.BaseCookie method), 1281
 load() (in module json), 1075
 load() (in module marshal), 432
 load() (in module pickle), 417
 load() (in module plistlib), 522
 load() (pickle.Unpickler method), 419
 load() (tracemalloc.Snapshot class method), 1637
 LOAD_ATTR (opcode), 1815
 LOAD_BUILD_CLASS (opcode), 1813
 load_cert_chain() (ssl.SSLContext method), 968
 LOAD_CLASSDEREF (opcode), 1817
 LOAD_CLOSURE (opcode), 1816
 LOAD_CONST (opcode), 1814
 load_default_certs() (ssl.SSLContext method), 968
 LOAD_DEREF (opcode), 1817
 load_dh_params() (ssl.SSLContext method), 971
 load_extension() (sqlite3.Connection method), 445
 LOAD_FAST (opcode), 1816
 LOAD_GLOBAL (opcode), 1816
 LOAD_METHOD (opcode), 1817
 load_module() (importlib.abc.FileLoader method), 1767
 load_module() (importlib.abc.InspectLoader method), 1766
 load_module() (importlib.abc.Loader method), 1764
 load_module() (importlib.abc.SourceLoader method), 1768
 load_module() (importlib.machinery.SourceFileLoader method), 1772
 load_module() (importlib.machinery.SourcelessFileLoader method), 1773
 load_module() (in module imp), 1891
 load_module() (zipimport.zipimporter method), 1752
 LOAD_NAME (opcode), 1814
 load_package_tests() (in module test.support), 1596
 load_verify_locations() (ssl.SSLContext method), 968
 loader, 1906
 Loader (class in importlib.abc), 1763
 loader (importlib.machinery.ModuleSpec attribute), 1773
 loader_state (importlib.machinery.ModuleSpec attribute), 1774
 LoadError, 1284
 LoadKey() (in module winreg), 1836
 LoadLibrary() (ctypes.LibraryLoader method), 739
 loads() (in module json), 1076
 loads() (in module marshal), 433
 loads() (in module pickle), 418
 loads() (in module plistlib), 522
 loads() (in module xmlrpc.client), 1299
 loadTestsFromModule() (unittest.TestLoader method), 1513
 loadTestsFromName() (unittest.TestLoader method), 1513
 loadTestsFromNames() (unittest.TestLoader method), 1513
 loadTestsFromTestCase() (unittest.TestLoader method), 1513
 local (class in threading), 752
 localcontext() (in module decimal), 305
 LOCALE (in module re), 114
 locale (module), 1349

localeconv() (in module `locale`), 1350
LocaleHTMLCalendar (class in `calendar`), 209
LocaleTextCalendar (class in `calendar`), 209
localName (`xml.dom.Attr` attribute), 1141
localName (`xml.dom.Node` attribute), 1137
-locals
 unittest command line option, 1496
locals() (built-in function), 15
localtime() (in module `email.utils`), 1069
localtime() (in module `time`), 603
Locator (class in `xml.sax.xmlreader`), 1159
Lock (class in `asyncio`), 863
Lock (class in `multiprocessing`), 779
Lock (class in `threading`), 755
lock() (`mailbox.Babyl` method), 1090
lock() (`mailbox.Mailbox` method), 1086
lock() (`mailbox.Maildir` method), 1087
lock() (`mailbox.mbox` method), 1088
lock() (`mailbox.MH` method), 1089
lock() (`mailbox.MMDF` method), 1090
Lock() (`multiprocessing.managers.SyncManager` method), 786
lock_held() (in module `imp`), 1893
locked() (`_thread.lock` method), 837
locked() (`asyncio.Condition` method), 865
locked() (`asyncio.Lock` method), 863
locked() (`asyncio.Semaphore` method), 866
lockf() (in module `fcntl`), 1854
lockf() (in module `os`), 550
locking() (in module `msvcrt`), 1833
LockType (in module `_thread`), 836
log() (in module `cmath`), 290
log() (in module `logging`), 658
log() (in module `math`), 287
log() (`logging.Logger` method), 648
log1p() (in module `math`), 287
log2() (in module `math`), 287
log10() (`decimal.Context` method), 309
log10() (`decimal.Decimal` method), 302
log10() (in module `cmath`), 291
log10() (in module `math`), 287
log_date_time_string()
 (`http.server.BaseHTTPRequestHandler` method), 1278
log_error() (`http.server.BaseHTTPRequestHandler` method), 1277
log_exception() (`wsgiref.handlers.BaseHandler` method), 1191
log_message() (`http.server.BaseHTTPRequestHandler` method), 1278
log_request() (`http.server.BaseHTTPRequestHandler` method), 1277
log_to_stderr() (in module `multiprocessing`), 797
logb() (`decimal.Context` method), 309
logb() (decimal.`Decimal` method), 302
Logger (class in `logging`), 646
LoggerAdapter (class in `logging`), 656
logging
 Errors, 645
logging (module), 645
logging.config (module), 661
logging.handlers (module), 672
logical_and() (`decimal.Context` method), 309
logical_and() (`decimal.Decimal` method), 302
logical_invert() (`decimal.Context` method), 309
logical_invert() (`decimal.Decimal` method), 302
logical_or() (`decimal.Context` method), 309
logical_or() (`decimal.Decimal` method), 302
logical_xor() (`decimal.Context` method), 309
logical_xor() (`decimal.Decimal` method), 302
login() (`ftplib.FTP` method), 1231
login() (`imaplib.IMAP4` method), 1239
login() (`nntplib.NNTP` method), 1246
login() (`smtplib.SMTP` method), 1253
login_cram_md5() (`imaplib.IMAP4` method), 1239
LOGNAME, 544, 685
lognormvariate() (in module `random`), 326
logout() (`imaplib.IMAP4` method), 1240
LogRecord (class in `logging`), 653
long (2to3 fixer), 1582
longMessage (unittest.`TestCase` attribute), 1510
longname() (in module `curses`), 688
lookup() (in module `codecs`), 157
lookup() (in module `unicodedata`), 142
lookup() (`symtable.SymbolTable` method), 1792
lookup() (`tkinter.ttk.Style` method), 1431
lookup_error() (in module `codecs`), 160
LookupError, 88
loop() (in module `asyncore`), 996
lower() (`bytearray` method), 63
lower() (`bytes` method), 63
lower() (`str` method), 47
LPAR (in module `token`), 1794
lpAttributeList (`subprocess.STARTUPINFO` attribute), 823
lru_cache() (in module `functools`), 352
lseek() (in module `os`), 550
lshift() (in module `operator`), 361
LSQB (in module `token`), 1794
lstat() (in module `os`), 561
lstat() (`pathlib.Path` method), 381
lstrip() (`bytearray` method), 59
lstrip() (`bytes` method), 59
lstrip() (`str` method), 47
lsub() (`imaplib.IMAP4` method), 1240
lt() (in module `operator`), 360
lt() (in module `turtle`), 1362
LWPCookieJar (class in `http.cookiejar`), 1287

lzma (module), 468
 LZMACompressor (class in lzma), 469
 LZMADecompressor (class in lzma), 470
 LZMAError, 468
 LZMAFile (class in lzma), 469

M

M (in module re), 114
 -m <mainfn>, -main=<mainfn>
 zipapp command line option, 1653
 -m, --memo
 pickletools command line option, 1820
 -m, --missing
 trace command line option, 1628
 mac_ver() (in module platform), 710
 machine() (in module platform), 708
 macpath (module), 414
 macros (netrc.netrc attribute), 518
 MAGIC_NUMBER (in module importlib.util), 1774
 MagicMock (class in unittest.mock), 1548
 Mailbox (class in mailbox), 1083
 mailbox (module), 1083
 mailcap (module), 1082
 Maildir (class in mailbox), 1086
 MaildirMessage (class in mailbox), 1091
 mailfrom (smtplib.SMTPChannel attribute), 1259
 MailmanProxy (class in smtplib), 1258
 main() (in module py_compile), 1803
 main() (in module site), 1744
 main() (in module unittest), 1517
 main_thread() (in module threading), 751
 mainloop() (in module turtle), 1382
 maintype (email.headerregistry.ContentTypeHeader attribute), 1040
 major (email.headerregistry.MIMEVersionHeader attribute), 1040
 major() (in module os), 562
 make_alternative() (email.message.EmailMessage method), 1021
 make_archive() (in module shutil), 411
 make_bad_fd() (in module test.support), 1594
 make_cookies() (http.cookiejar.CookieJar method), 1286
 make_dataclass() (in module dataclasses), 1692
 make_file() (difflib.HtmlDiff method), 129
 MAKE_FUNCTION (opcode), 1818
 make_header() (in module email.header), 1065
 make_legacy_pyc() (in module test.support), 1588
 make_mixed() (email.message.EmailMessage method), 1021
 make_msgid() (in module email.utils), 1069
 make_parser() (in module xml.sax), 1151
 make_pkg() (in module test.support.script_helper), 1599

make_related() (email.message.EmailMessage method), 1021
 make_script() (in module test.support.script_helper), 1599
 make_server() (in module wsgiref.simple_server), 1186
 make_table() (difflib.HtmlDiff method), 129
 make_zip_pkg() (in module test.support.script_helper), 1599
 make_zip_script() (in module test.support.script_helper), 1599
 makedev() (in module os), 563
 makedirs() (in module os), 562
 makeelement() (xml.etree.ElementTree.Element method), 1129
 makefile() (socket.socket method), 940
 makeLogRecord() (in module logging), 659
 makePickle() (logging.handlers.SocketHandler method), 677
 makeRecord() (logging.Logger method), 649
 makeSocket() (logging.handlers.DatagramHandler method), 678
 makeSocket() (logging.handlers.SocketHandler method), 677
 maketrans() (bytarray static method), 57
 maketrans() (bytes static method), 57
 maketrans() (str static method), 48
 mangle_from_ (email.policy.Compat32 attribute), 1035
 mangle_from_ (email.policy.Policy attribute), 1031
 map (2to3 fixer), 1582
 map() (built-in function), 15
 map() (concurrent.futures.Executor method), 808
 map() (multiprocessing.pool.Pool method), 791
 map() (tkinter.ttk.Style method), 1430
 MAP_ADD (opcode), 1813
 map_async() (multiprocessing.pool.Pool method), 791
 map_table_b2() (in module stringprep), 145
 map_table_b3() (in module stringprep), 145
 map_to_type() (email.headerregistry.HeaderRegistry method), 1041
 mapLogRecord() (logging.handlers.HTTPHandler method), 682
 mapping, 1906
 object, 77
 types, operations on, 77
 Mapping (class in collections.abc), 229
 Mapping (class in typing), 1460
 mapping() (msilib.Control method), 1831
 MappingProxyType (class in types), 251
 MappingView (class in collections.abc), 229
 MappingView (class in typing), 1460

mapPriority() (logging.handlers.SysLogHandler method), 680
maps (collections.ChainMap attribute), 211
maps() (in module nis), 1861
marshal (module), 432
marshalling
 objects, 415
masking
 operations, 32
Match (class in typing), 1463
match() (in module nis), 1860
match() (in module re), 115
match() (pathlib.PurePath method), 376
match() (re.Pattern method), 118
match_hostname() (in module ssl), 954
match_test() (in module test.support), 1589
match_value() (test.support.Matcher method), 1598
Matcher (class in test.support), 1598
matches() (test.support.Matcher method), 1598
math
 module, 31, 293
math (module), 284
matmul() (in module operator), 361
max
 built-in function, 37
max (datetime.date attribute), 180
max (datetime.datetime attribute), 185
max (datetime.time attribute), 192
max (datetime.timedelta attribute), 177
max() (built-in function), 15
max() (decimal.Context method), 309
max() (decimal.Decimal method), 302
max() (in module audioop), 1323
max_count (email.headerregistry.BaseHeader attribute), 1038
MAX_EMAX (in module decimal), 311
MAX_INTERPOLATION_DEPTH (in module configparser), 516
max_line_length (email.policy.Policy attribute), 1031
max_lines (textwrap.TextWrapper attribute), 142
max_mag() (decimal.Context method), 309
max_mag() (decimal.Decimal method), 302
max_memuse (in module test.support), 1588
MAX_PREC (in module decimal), 311
max_prefixlen (ipaddress.IPv4Address attribute), 1308
max_prefixlen (ipaddress.IPv4Network attribute), 1312
max_prefixlen (ipaddress.IPv6Address attribute), 1309
max_prefixlen (ipaddress.IPv6Network attribute), 1315
MAX_Py_ssize_t (in module test.support), 1588
maxarray (reprlib.Repr attribute), 260
maxdeque (reprlib.Repr attribute), 260
maxdict (reprlib.Repr attribute), 260
maxDiff (unittest.TestCase attribute), 1510
maxfrozenset (reprlib.Repr attribute), 260
MAXIMUM_SUPPORTED (ssl.TLSVersion attribute), 962
maximum_version (ssl.SSLContext attribute), 973
 maxlen (collections.deque attribute), 217
maxlevel (reprlib.Repr attribute), 260
maxlist (reprlib.Repr attribute), 260
maxlong (reprlib.Repr attribute), 260
maxother (reprlib.Repr attribute), 260
maxpp() (in module audioop), 1323
maxset (reprlib.Repr attribute), 260
maxsize (asyncio.Queue attribute), 871
maxsize (in module sys), 1669
maxstring (reprlib.Repr attribute), 260
maxtuple (reprlib.Repr attribute), 260
maxunicode (in module sys), 1669
MAXYEAR (in module datetime), 175
MB_ICONASTERISK (in module winsound), 1843
MB_ICONEXCLAMATION (in module winsound), 1843
MB_ICONHAND (in module winsound), 1843
MB_ICONQUESTION (in module winsound), 1844
MB_OK (in module winsound), 1844
mbox (class in mailbox), 1087
mboxMessage (class in mailbox), 1093
mean() (in module statistics), 330
median() (in module statistics), 331
median_grouped() (in module statistics), 332
median_high() (in module statistics), 332
median_low() (in module statistics), 331
MemberDescriptorType (in module types), 251
memmove() (in module ctypes), 744
MemoryBIO (class in ssl), 982
MemoryError, 89
MemoryHandler (class in logging.handlers), 682
memoryview
 object, 53
memoryview (built-in class), 68
memset() (in module ctypes), 744
merge() (in module heapq), 232
Message (class in email.message), 1053
Message (class in mailbox), 1091
message digest, MD5, 525
message_factory (email.policy.Policy attribute), 1031
message_from_binary_file() (in module email), 1025
message_from_bytes() (in module email), 1025
message_from_file() (in module email), 1025
message_from_string() (in module email), 1025
MessageBeep() (in module winsound), 1842

MessageClass (`http.server.BaseHTTPRequestHandler` attribute), 1276
 MessageError, 1036
 MessageParseError, 1036
 messages (in module `xml.parsers.expat.errors`), 1169
 meta path finder, 1906
`meta()` (in module `curses`), 688
`meta_path` (in module `sys`), 1669
 metaclass, 1906
`metaclass` (2to3 fixer), 1582
`MetaPathFinder` (class in `importlib.abc`), 1762
`metavar` (`optparse.Option` attribute), 1877
`MetavarTypeHelpFormatter` (class in `argparse`), 615
`Meter` (class in `tkinter.tix`), 1435
`method`, 1906
 object, 82
`method` (`urllib.request.Request` attribute), 1198
 method resolution order, 1906
`METHOD_BLOWFISH` (in module `crypt`), 1849
`method_calls` (`unittest.mock.Mock` attribute), 1530
`METHOD_CRYPT` (in module `crypt`), 1849
`METHOD_MD5` (in module `crypt`), 1849
`METHOD_SHA256` (in module `crypt`), 1849
`METHOD_SHA512` (in module `crypt`), 1849
`methodattrs` (2to3 fixer), 1582
`methodcaller()` (in module `operator`), 363
`MethodDescriptorType` (in module `types`), 250
`methodHelp()` (`xmlrpc.client.ServerProxy`.`system` method), 1295
`methods`
 bytarray, 56
 bytes, 56
 string, 44
`methods` (in module `crypt`), 1849
`methods` (`pyclbr.Class` attribute), 1801
`methodSignature()` (`xmlrpc.client.ServerProxy`.`system` method), 1294
`MethodType` (in module `types`), 250
`MethodWrapperType` (in module `types`), 250
`MH` (class in `mailbox`), 1088
`MHMessage` (class in `mailbox`), 1095
`microsecond` (`datetime.datetime` attribute), 185
`microsecond` (`datetime.time` attribute), 192
`MIME`
 base64 encoding, 1103
 content type, 1100
 headers, 1101, 1175
 quoted-printable encoding, 1109
`MIMEApplication` (class in `email.mime.application`), 1062
`MIMEAudio` (class in `email.mime.audio`), 1062
`MIMEBase` (class in `email.mime.base`), 1061
`MIMEImage` (class in `email.mime.image`), 1062
`MIMEMessage` (class in `email.mime.message`), 1063
`MIMEMultipart` (class in `email.mime.multipart`), 1061
`MIMENonMultipart` (class in `email.mime.nonmultipart`), 1061
`MIMEPart` (class in `email.message`), 1022
`MIMEText` (class in `email.mime.text`), 1063
`MimeTypes` (class in `mimetypes`), 1102
`mimetypes` (module), 1100
`MIMEVersionHeader` (class in `email.headerregistry`), 1040
`min`
 built-in function, 37
`min` (`datetime.date` attribute), 180
`min` (`datetime.datetime` attribute), 185
`min` (`datetime.time` attribute), 192
`min` (`datetime.timedelta` attribute), 177
`min()` (built-in function), 15
`min()` (`decimal.Context` method), 309
`min()` (`decimal.Decimal` method), 302
`MIN_EMIN` (in module `decimal`), 311
`MIN_ETINY` (in module `decimal`), 311
`min_mag()` (`decimal.Context` method), 309
`min_mag()` (`decimal.Decimal` method), 302
`MINEQUAL` (in module `token`), 1794
`MINIMUM_SUPPORTED` (`ssl.TLSVersion` attribute), 962
`minimum_version` (`ssl.SSLContext` attribute), 974
`minmax()` (in module `audioop`), 1323
`minor` (`email.headerregistry.MIMEVersionHeader` attribute), 1040
`minor()` (in module `os`), 562
`MINUS` (in module `token`), 1794
`minus()` (`decimal.Context` method), 309
`minute` (`datetime.datetime` attribute), 185
`minute` (`datetime.time` attribute), 192
`MINYEAR` (in module `datetime`), 175
`mirrored()` (in module `unicodedata`), 143
`misc_header` (`cmd.Cmd` attribute), 1394
`MISSING` (`contextvars.contextvars.Token`.`Token` attribute), 840
`MISSING_C_DOCSTRINGS` (in module `test.support`), 1588
`missing_compiler_executable()` (in module `test.support`), 1596
`MissingSectionHeaderError`, 517
`MIXERDEV`, 1336
`mkd()` (`ftplib.FTP` method), 1233
`mkdir()` (in module `os`), 561
`mkdir()` (`pathlib.Path` method), 381
`mkdtemp()` (in module `tempfile`), 400
`mkfifo()` (in module `os`), 562
`mknod()` (in module `os`), 562
`mksalt()` (in module `crypt`), 1849

mkstemp() (in module `tempfile`), 400
mktemp() (in module `tempfile`), 402
mktime() (in module `time`), 603
mktime_tz() (in module `email.utils`), 1070
mlsd() (`ftplib.FTP` method), 1232
`mmap` (class in `mmap`), 1009
`mmap` (module), 1009
MMDF (class in `mailbox`), 1090
MMDFMessage (class in `mailbox`), 1097
Mock (class in `unittest.mock`), 1524
`mock_add_spec()` (`unittest.mock.Mock` method), 1527
`mock_calls` (`unittest.mock.Mock` attribute), 1531
`mock_open()` (in module `unittest.mock`), 1553
`mod()` (in module `operator`), 361
`mode` (`io.FileIO` attribute), 595
`mode` (`osaudiodev.oss_audio_device` attribute), 1338
`mode` (`tarfile.TarInfo` attribute), 487
`mode()` (in module `statistics`), 332
`mode()` (in module `turtle`), 1383
`modes`
 file, 17
`modf()` (in module `math`), 286
`modified()` (`urllib.robotparser.RobotFileParser` method), 1219
`Modify()` (`msilib.View` method), 1829
`modify()` (`select.devpoll` method), 988
`modify()` (`select.epoll` method), 989
`modify()` (`selectors.BaseSelector` method), 994
`modify()` (`select.poll` method), 990
`module`, 1906
 `__main__`, 1757, 1758
 `_locale`, 1349
 `array`, 53
 `base64`, 1107
 `bdb`, 1608
 `binhex`, 1107
 `cmd`, 1608
 `copy`, 428
 `crypt`, 1846
 `dbm.gnu`, 430
 `dbm.ndbm`, 430
 `errno`, 89
 `glob`, 404
 `imp`, 25
 `math`, 31, 293
 `os`, 1845
 `pickle`, 253, 428, 429, 432
 `pty`, 552
 `pwd`, 386
 `pyexpat`, 1163
 `re`, 44, 404
 `search path`, 405, 1670, 1742
 `shelve`, 432
 `signal`, 837
 `sitemodules`, 1743
 `socket`, 1173
 `stat`, 567
 `string`, 1355
 `struct`, 945
 `sys`, 18
 `types`, 83
 `urllib.request`, 1222
 `usermodules`, 1743
 `uu`, 1107
 `module` (`pyclbr.Class` attribute), 1801
 `module` (`pyclbr.Function` attribute), 1800
 `module spec`, 1906
 `module_for_loader()` (in module `importlib.util`), 1776
 `module_from_spec()` (in module `importlib.util`), 1775
 `module_repr()` (`importlib.abc.Loader` method), 1764
 `ModuleFinder` (class in `modulefinder`), 1756
 `modulefinder` (module), 1755
 `ModuleInfo` (class in `pkgutil`), 1753
 `ModuleNotFoundError`, 89
 `modules` (in module `sys`), 1670
 `modules` (`modulefinder.ModuleFinder` attribute), 1756
 `modules_cleanup()` (in module `test.support`), 1595
 `modules_setup()` (in module `test.support`), 1595
 `ModuleSpec` (class in `importlib.machinery`), 1773
 `ModuleType` (class in `types`), 250
 `monotonic()` (in module `time`), 603
 `monotonic_ns()` (in module `time`), 603
 `month` (`datetime.date` attribute), 180
 `month` (`datetime.datetime` attribute), 185
 `month()` (in module `calendar`), 210
 `month_abbr` (in module `calendar`), 210
 `month_name` (in module `calendar`), 210
 `monthcalendar()` (in module `calendar`), 210
 `monthdatescalendar()` (`calendar.Calendar` method), 207
 `monthdays2calendar()` (`calendar.Calendar` method), 207
 `monthdayscalendar()` (`calendar.Calendar` method), 207
 `monthrange()` (in module `calendar`), 209
 `Morsel` (class in `http.cookies`), 1281
 `most_common()` (`collections.Counter` method), 214
 `mouseinterval()` (in module `curses`), 688
 `mousemask()` (in module `curses`), 689
 `move()` (`curses.panel.Panel` method), 707
 `move()` (`curses.window` method), 696
 `move()` (in module `shutil`), 409
 `move()` (`mmap.mmap` method), 1011

move() (tkinter.ttk.Treeview method), 1428
 move_to_end() (collections.OrderedDict method), 225
 MozillaCookieJar (class in http.cookiejar), 1287
 MRO, 1906
 mro() (class method), 84
 msg (http.client.HTTPResponse attribute), 1226
 msg (json.JSONDecodeError attribute), 1079
 msg (re.error attribute), 118
 msg (traceback.TracebackException attribute), 1718
 msg() (telnetlib.Telnet method), 1261
 msi, 1827
 msilib (module), 1827
 msvert (module), 1832
 mt_interact() (telnetlib.Telnet method), 1261
 mtime (gzip.GzipFile attribute), 464
 mtime (tarfile.TarInfo attribute), 487
 mtime() (urllib.robotparser.RobotFileParser method), 1219
 mul() (in module audioop), 1323
 mul() (in module operator), 361
 MultiCall (class in xmlrpc.client), 1298
 MULTILINE (in module re), 114
 MultipartConversionError, 1036
 multiply() (decimal.Context method), 309
 multiprocessing (module), 763
 multiprocessing.connection (module), 793
 multiprocessing.dummy (module), 797
 multiprocessing.Manager() (in module multiprocessing.sharedctypes), 784
 multiprocessing.managers (module), 784
 multiprocessing.pool (module), 790
 multiprocessing.sharedctypes (module), 782
 mutable, 1906
 sequence types, 39
 MutableMapping (class in collections.abc), 229
 MutableMapping (class in typing), 1460
 MutableSequence (class in collections.abc), 229
 MutableSequence (class in typing), 1460
 MutableSet (class in collections.abc), 229
 MutableSet (class in typing), 1460
 myderwin() (curses.window method), 696
 mvwin() (curses.window method), 696
 myrights() (imaplib.IMAP4 method), 1240

N

-n N, --number=N
 timeit command line option, 1625
 N_TOKENS (in module token), 1794
 n_waiting (threading.Barrier attribute), 762
 name (codecs.CodecInfo attribute), 157
 name (contextvars.ContextVar attribute), 839
 name (doctest.DocTest attribute), 1485
 name (email.headerregistry.BaseHeader attribute), 1038
 name (hashlib.hash attribute), 527
 name (hmac.HMAC attribute), 537
 name (http.cookiejar.Cookie attribute), 1290
 name (importlib.abc.FileLoader attribute), 1767
 name (importlib.machinery.ExtensionFileLoader attribute), 1773
 name (importlib.machinery.ModuleSpec attribute), 1773
 name (importlib.machinery.SourceFileLoader attribute), 1772
 name (importlib.machinery.SourcelessFileLoader attribute), 1772
 name (importlib.machinery.SourcelessFileLoader attribute), 1772
 name (in module os), 541
 NAME (in module token), 1794
 name (inspect.Parameter attribute), 1733
 name (io.FileIO attribute), 595
 name (multiprocessing.Process attribute), 770
 name (os.DirEntry attribute), 565
 name (ossaudiodev.oss_audio_device attribute), 1338
 name (pyclbr.Class attribute), 1801
 name (pyclbr.Function attribute), 1800
 name (tarfile.TarInfo attribute), 487
 name (threading.Thread attribute), 754
 name (xml.dom.Attr attribute), 1141
 name (xml.dom.DocumentType attribute), 1139
 name() (in module unicodedata), 142
 name2codepoint (in module html.entities), 1116
 named tuple, 1906
 NamedTemporaryFile() (in module tempfile), 399
 NamedTuple (class in typing), 1463
 namedtuple() (in module collections), 221
 NameError, 89
 namelist() (zipfile.ZipFile method), 476
 nameprep() (in module encodings.idna), 173
 namer (logging.handlers.BaseRotatingHandler attribute), 674
 namereplace_errors() (in module codecs), 161
 namespace, 1907
 Namespace (class in argparse), 634
 Namespace (class in multiprocessing.managers), 786
 namespace package, 1907
 namespace() (imaplib.IMAP4 method), 1240
 Namespace() (multiprocessing.managers.SyncManager method), 786
 NAMESPACE_DNS (in module uuid), 1265
 NAMESPACE_OID (in module uuid), 1265
 NAMESPACE_URL (in module uuid), 1265
 NAMESPACE_X500 (in module uuid), 1265
 NamespaceErr, 1143
 namespaceURI (xml.dom.Node attribute), 1137

NaN, 11
nan (in module cmath), 292
nan (in module math), 289
nanj (in module cmath), 293
NannyNag, 1800
napms() (in module curses), 689
nargs (optparse.Option attribute), 1876
 nbytes (memoryview attribute), 73
ndiff() (in module difflib), 130
ndim (memoryview attribute), 74
ne (2to3 fixer), 1582
ne() (in module operator), 360
needs_input (bz2.BZ2Decompressor attribute), 467
needs_input (lzma.LZMADecompressor attribute), 471
neg() (in module operator), 361
nested scope, 1907
netmask (ipaddress.IPv4Network attribute), 1312
netmask (ipaddress.IPv6Network attribute), 1315
NetmaskValueError, 1319
netrc (class in netrc), 518
netrc (module), 518
NetrcParseError, 518
netscape (http.cookiejar.CookiePolicy attribute), 1288
network (ipaddress.IPv4Interface attribute), 1317
network (ipaddress.IPv6Interface attribute), 1317
Network News Transfer Protocol, 1243
network_address (ipaddressIPv4Network attribute), 1312
network_address (ipaddressIPv6Network attribute), 1315
new() (in module hashlib), 526
new() (in module hmac), 535
new_alignment() (formatter.writer method), 1823
new_child() (collections.ChainMap method), 211
new_class() (in module types), 248
new_event_loop() (asyncio.AbstractEventLoopPolicy method), 913
new_event_loop() (in module asyncio), 875
new_font() (formatter.writer method), 1823
new_margin() (formatter.writer method), 1824
new_module() (in module imp), 1891
new_panel() (in module curses.panel), 707
new_spacing() (formatter.writer method), 1824
new_styles() (formatter.writer method), 1824
newgroups() (nntplib.NNTP method), 1246
NEWLINE (in module token), 1794
newlines (io.TextIOBase attribute), 597
newnews() (nntplib.NNTP method), 1246
newpad() (in module curses), 689
new-style class, 1907
NewType() (in module typing), 1464
newwin() (in module curses), 689
next (2to3 fixer), 1582
next (pdb command), 1612
next() (built-in function), 16
next() (nntplib.NNTP method), 1248
next() (tarfile.TarFile method), 485
next() (tkinter.ttk.Treeview method), 1428
next_minus() (decimal.Context method), 309
next_minus() (decimal.Decimal method), 302
next_plus() (decimal.Context method), 309
next_plus() (decimal.Decimal method), 303
next_toward() (decimal.Context method), 309
next_toward() (decimal.Decimal method), 303
nextfile() (in module fileinput), 390
nextkey() (dbm.gnu.gdbm method), 435
nextSibling (xml.dom.Node attribute), 1137
gettext() (gettext.GNUTranslations method), 1345
gettext() (gettext.NullTranslations method), 1344
gettext() (in module gettext), 1342
nice() (in module os), 578
nis (module), 1860
NL (in module token), 1795
nl() (in module curses), 689
nl_langinfo() (in module locale), 1351
nlargest() (in module heapq), 232
nlst() (ftplib.FTP method), 1232
NNTP
 protocol, 1243
NNTP (class in nntplib), 1244
nntp_implementation (nntplib.NNTP attribute), 1245
NNTP_SSL (class in nntplib), 1244
nntp_version (nntplib.NNTP attribute), 1245
NNTPDataError, 1245
NNTPError, 1244
nntplib (module), 1243
NNTPPermanentError, 1244
NNTPProtocolError, 1245
NNTPReplyError, 1244
NNTPTemporaryError, 1244
no_proxy, 1196
no_tracing() (in module test.support), 1594
no_type_check() (in module typing), 1465
no_type_check_decorator() (in module typing), 1465
nocbreak() (in module curses), 689
NoDataAllowedErr, 1143
node() (in module platform), 708
nodelay() (curses.window method), 696
nodeName (xml.dom.Node attribute), 1137
NodeTransformer (class in ast), 1790
nodeType (xml.dom.Node attribute), 1136
nodeValue (xml.dom.Node attribute), 1137
NodeVisitor (class in ast), 1790

noecho() (in module curses), 689
 NOEXPR (in module locale), 1352
 NoModificationAllowedErr, 1143
 nonblock() (osaudiodev.oss_audio_device method), 1337
 NonCallableMagicMock (class in unittest.mock), 1548
 NonCallableMock (class in unittest.mock), 1532
 None (Built-in object), 29
 None (built-in variable), 27
 nonl() (in module curses), 689
 nonzero (2to3 fixer), 1582
 noop() (imaplib.IMAP4 method), 1240
 noop() (poplib.POP3 method), 1235
 NoOptionError, 517
 NOP (opcode), 1810
 nociflush() (in module curses), 689
 noraw() (in module curses), 689
 NoReturn (in module typing), 1465
 NORMAL_PRIORITY_CLASS (in module subprocess), 825
 normalize() (decimal.Context method), 309
 normalize() (decimal.Decimal method), 303
 normalize() (in module locale), 1354
 normalize() (in module unicodedata), 143
 normalize() (xml.dom.Node method), 1138
 NORMALIZE_WHITESPACE (in module doctest), 1476
 normalvariate() (in module random), 326
 normcase() (in module os.path), 387
 normpath() (in module os.path), 388
 NoSectionError, 517
 NoSuchMailboxError, 1099
 not
 operator, 29
 not in
 operator, 30, 37
 not_() (in module operator), 360
 NotADirectoryError, 93
 notationDecl() (xml.sax.handlerDTDHandler method), 1157
 NotationDeclHandler() (xml.parsers.expat.xmlparser method), 1166
 notations (xml.dom.DocumentType attribute), 1139
 NotConnected, 1223
 NoteBook (class in tkinter.tix), 1436
 Notebook (class in tkinter.ttk), 1422
 NotEmptyError, 1099
 NOTEQUAL (in module token), 1794
 NotFoundErr, 1143
 notify() (asyncio.Condition method), 865
 notify() (threading.Condition method), 758
 notify_all() (asyncio.Condition method), 865
 notify_all() (threading.Condition method), 758
 notimeout() (curses.window method), 696
 NotImplemented (built-in variable), 27
 NotImplementedError, 89
 NotStandaloneHandler()
 (xml.parsers.expat.xmlparser method), 1167
 NotSupportedErr, 1143
 NotSupportedError, 452
 nouorefresh() (curses.window method), 696
 now() (datetime.datetime class method), 183
 NSIG (in module signal), 1004
 nsmallest() (in module heapq), 232
 NT_OFFSET (in module token), 1794
 NTEventLogHandler (class in logging.handlers), 680
 ntohl() (in module socket), 936
 ntohs() (in module socket), 936
 ntransfercmd() (ftplib.FTP method), 1232
 nullcontext() (in module contextlib), 1698
 NullFormatter (class in formatter), 1823
 NullHandler (class in logging), 673
 NullImporter (class in imp), 1894
 NullTranslations (class in gettext), 1343
 NullWriter (class in formatter), 1824
 num_addresses (ipaddress.IPv4Network attribute), 1312
 num_addresses (ipaddress.IPv6Network attribute), 1315
 Number (class in numbers), 281
 NUMBER (in module token), 1794
 number_class() (decimal.Context method), 309
 number_class() (decimal.Decimal method), 303
 numbers (module), 281
 numerator (fractions.Fraction attribute), 322
 numerator (numbers.Rational attribute), 282
 numeric
 conversions, 31
 literals, 31
 object, 30
 types, operations on, 31
 numeric() (in module unicodedata), 143
 Numerical Python, 22
 numinput() (in module turtle), 1383
 numliterals (2to3 fixer), 1582

O

-o <output>, --output=<output>
 zipapp command line option, 1652
 -o, --output=<file>
 pickletools command line option, 1820
 O_APPEND (in module os), 551
 O_ASYNC (in module os), 551
 O_BINARY (in module os), 551
 O_CLOEXEC (in module os), 551
 O_CREAT (in module os), 551

O_DIRECT (in module os), 551
O_DIRECTORY (in module os), 551
O_DSYNC (in module os), 551
O_EXCL (in module os), 551
O_EXLOCK (in module os), 551
O_NDELAY (in module os), 551
O_NOATIME (in module os), 551
O_NOCTTY (in module os), 551
O_NOFOLLOW (in module os), 551
O_NOINHERIT (in module os), 551
O_NONBLOCK (in module os), 551
O_PATH (in module os), 551
O_RANDOM (in module os), 551
O_RDONLY (in module os), 551
O_RDWR (in module os), 551
O_RSYNC (in module os), 551
O_SEQUENTIAL (in module os), 551
O_SHLOCK (in module os), 551
O_SHORT_LIVED (in module os), 551
O_SYNC (in module os), 551
O_TEMPORARY (in module os), 551
O_TEXT (in module os), 551
O_TMPFILE (in module os), 551
O_TRUNC (in module os), 551
O_WRONLY (in module os), 551
obj (memoryview attribute), 73
object, 1907

- Boolean, 30
- bytearray, 39, 53, 55
- bytes, 53, 54
- code, 83, 432
- complex number, 30
- dictionary, 77
- floating point, 30
- integer, 30
- io.StringIO, 44
- list, 39, 40
- mapping, 77
- memoryview, 53
- method, 82
- numeric, 30
- range, 42
- sequence, 37
- set, 74
- socket, 927
- string, 43
- traceback, 1662, 1715
- tuple, 39, 41
- type, 24

object (built-in class), 16
object (UnicodeError attribute), 92
objects

- comparing, 30
- flattening, 415

marshalling, 415
persistent, 415
pickling, 415
serializing, 415
obufcount() (osaudiodev.oss_audio_device method), 1338
obuffree() (osaudiodev.oss_audio_device method), 1338
oct() (built-in function), 16
octal literals, 31
octdigits (in module string), 97
offset (traceback.TracebackException attribute), 1718
offset (xml.parsers.expat.ExpatError attribute), 1168
OK (in module curses), 698
old_value (contextvars.contextvars.Token.Token attribute), 840
OleDLL (class in ctypes), 737
onclick() (in module turtle), 1376, 1382
ondrag() (in module turtle), 1377
onecmd() (cmd.Cmd method), 1393
onkey() (in module turtle), 1381
onkeypress() (in module turtle), 1381
onkeyrelease() (in module turtle), 1381
onrelease() (in module turtle), 1376
onscreenclick() (in module turtle), 1382
ontimer() (in module turtle), 1382
OP (in module token), 1794
OP_ALL (in module ssl), 959
OP_CIPHER_SERVER_PREFERENCE (in module ssl), 960
OP_ENABLE_MIDDLEBOX_COMPAT (in module ssl), 960
OP_NO_COMPRESSION (in module ssl), 960
OP_NO_RENEGOTIATION (in module ssl), 960
OP_NO_SSLv2 (in module ssl), 959
OP_NO_SSLv3 (in module ssl), 959
OP_NO_TICKET (in module ssl), 960
OP_NO_TLSv1 (in module ssl), 959
OP_NO_TLSv1_1 (in module ssl), 959
OP_NO_TLSv1_2 (in module ssl), 959
OP_NO_TLSv1_3 (in module ssl), 959
OP_SINGLE_DH_USE (in module ssl), 960
OP_SINGLE_ECDH_USE (in module ssl), 960
open() (built-in function), 16
open() (imaplib.IMAP4 method), 1240
open() (in module aifc), 1324
open() (in module bz2), 465
open() (in module codecs), 158
open() (in module dbm), 433
open() (in module dbm.dumb), 437
open() (in module dbm.gnu), 435
open() (in module dbm.ndbm), 436

open() (in module gzip), 463
 open() (in module io), 589
 open() (in module lzma), 468
 open() (in module os), 550
 open() (in module ossaudiodev), 1335
 open() (in module shelve), 429
 open() (in module sunau), 1327
 open() (in module tarfile), 482
 open() (in module tokenize), 1796
 open() (in module wave), 1329
 open() (in module webbrowser), 1173
 open() (pathlib.Path method), 381
 open() (pipes.Template method), 1856
 open() (tarfile.TarFile class method), 485
 open() (telnetlib.Telnet method), 1261
 open() (urllib.request.OpenerDirector method), 1199
 open() (urllib.request.URLopener method), 1209
 open() (webbrowser.controller method), 1175
 open() (zipfile.ZipFile method), 476
 open_binary() (in module importlib.resources), 1769
 open_connection() (in module asyncio), 857
 open_new() (in module webbrowser), 1174
 open_new() (webbrowser.controller method), 1175
 open_new_tab() (in module webbrowser), 1174
 open_new_tab() (webbrowser.controller method), 1175
 open_osfhandle() (in module msvcr), 1833
 open_resource() (importlib.abc.ResourceReader method), 1765
 open_text() (in module importlib.resources), 1769
 open_unix_connection() (in module asyncio), 857
 open_unknown() (urllib.request.URLopener method), 1209
 open_urlresource() (in module test.support), 1594
 OpenDatabase() (in module msilib), 1827
 OpenerDirector (class in urllib.request), 1196
 openfp() (in module sunau), 1327
 openfp() (in module wave), 1330
 OpenKey() (in module winreg), 1837
 OpenKeyEx() (in module winreg), 1837
 openlog() (in module syslog), 1861
 openmixer() (in module ossaudiodev), 1336
 openpty() (in module os), 551
 openpty() (in module pty), 1852
 OpenSSL
 (use in module hashlib), 525
 (use in module ssl), 950
 OPENSSL_VERSION (in module ssl), 961
 OPENSSL_VERSION_INFO (in module ssl), 962
 OPENSSL_VERSION_NUMBER (in module ssl), 962
 OpenView() (msilib.Database method), 1828
 operation
 concatenation, 37
 repetition, 37
 slice, 37
 subscript, 37
 OperationalError, 452
 operations
 bitwise, 32
 Boolean, 29
 masking, 32
 shifting, 32
 operations on
 dictionary type, 77
 integer types, 32
 list type, 39
 mapping types, 77
 numeric types, 31
 sequence types, 37, 39
 operator
 - (minus), 31
 % (percent), 31
 & (ampersand), 32
 * (asterisk), 31
 ** , 31
 + (plus), 31
 / (slash), 31
 //, 31
 < (less), 30
 <<, 32
 <=, 30
 !=, 30
 ==, 30
 > (greater), 30
 >=, 30
 >>, 32
 ^ (caret), 32
 | (vertical bar), 32
 ~ (tilde), 32
 and, 29
 comparison, 30
 in, 30, 37
 is, 30
 is not, 30
 not, 29
 not in, 30, 37
 or, 29
 operator (2to3 fixer), 1583
 operator (module), 359
 opmap (in module dis), 1819
 opname (in module dis), 1819
 optim_args_from_interpreter_flags() (in module test.support), 1591
 optimize() (in module pickletools), 1820
 OPTIMIZED_BYTECODE_SUFFIXES (in module importlib.machinery), 1770
 Optional (in module typing), 1465

OptionGroup (class in optparse), 1870
OptionMenu (class in tkinter.tix), 1435
OptionParser (class in optparse), 1874
Options (class in ssl), 960
options (doctest.Example attribute), 1485
options (ssl.SSLContext attribute), 974
options() (configparser.ConfigParser method), 514
optionxform() (configparser.ConfigParser method), 510, 516
optparse (module), 1863
or
 operator, 29
or_() (in module operator), 361
ord() (built-in function), 19
ordered_attributes (xml.parsers.expat.xmlparser attribute), 1165
OrderedDict (class in collections), 224
OrderedDict (class in typing), 1461
origin (importlib.machinery.ModuleSpec attribute), 1774
origin_req_host (urllib.request.Request attribute), 1198
origin_server (wsgiref.handlers.BaseHandler attribute), 1191
os
 module, 1845
os (module), 541
os_environ (wsgiref.handlers.BaseHandler attribute), 1190
OSError, 89
os.path (module), 384
osaudiodev (module), 1335
OSSAudioError, 1335
outfile
 json.tool command line option, 1081
output (subprocess.CalledProcessError attribute), 816
output (subprocess.TimeoutExpired attribute), 816
output (unittest.TestCase attribute), 1507
output() (http.cookies.BaseCookie method), 1281
output() (http.cookies.Morsel method), 1282
output_charset (email.charset.Charset attribute), 1066
output_charset() (gettext.NullTranslations method), 1344
output_codec (email.charset.Charset attribute), 1067
output_difference() (doctest.OutputChecker method), 1488
OutputChecker (class in doctest), 1488
OutputString() (http.cookies.Morsel method), 1282
over() (nntplib.NNTP method), 1247
Overflow (class in decimal), 312
OverflowError, 90
overlaps() (ipaddress.IPv4Network method), 1313
overlaps() (ipaddress.IPv6Network method), 1315
overlay() (curses.window method), 696
overload() (in module typing), 1464
overwrite() (curses.window method), 696
owner() (pathlib.Path method), 381

P

p (pdb command), 1612
-p <interpreter>, --python=<interpreter>
 zipapp command line option, 1653
-p, --pattern pattern
 unittest-discover command line option, 1496
-p, --preamble=<preamble>
 pickletools command line option, 1820
-p, --process
 timeit command line option, 1625
P_ALL (in module os), 582
P_DETACH (in module os), 580
P_NOWAIT (in module os), 580
P_NOWAITO (in module os), 580
P_OVERLAY (in module os), 580
P_PGID (in module os), 582
P_PID (in module os), 582
P_WAIT (in module os), 580
pack() (in module struct), 151
pack() (mailbox.MH method), 1089
pack() (struct.Struct method), 156
pack_array() (xdrlib.Packer method), 520
pack_bytes() (xdrlib.Packer method), 520
pack_double() (xdrlib.Packer method), 519
pack_farray() (xdrlib.Packer method), 520
pack_float() (xdrlib.Packer method), 519
pack_fopaque() (xdrlib.Packer method), 519
pack_fstring() (xdrlib.Packer method), 519
pack_into() (in module struct), 152
pack_into() (struct.Struct method), 156
pack_list() (xdrlib.Packer method), 520
pack_opaque() (xdrlib.Packer method), 519
pack_string() (xdrlib.Packer method), 519
package, 1742, 1907
Package (in module importlib.resources), 1768
packed (ipaddress.IPv4Address attribute), 1308
packed (ipaddress.IPv6Address attribute), 1309
Packer (class in xdrlib), 519
packing
 binary data, 151
packing (widgets), 1409
PAGER, 1468
pair_content() (in module curses), 689
pair_number() (in module curses), 690
PanedWindow (class in tkinter.tix), 1436
parameter, 1907
Parameter (class in inspect), 1733

ParameterizedMIMEHeader (class in email.headerregistry), 1040
parameters (inspect.Signature attribute), 1732
params (email.headerregistry.ParameterizedMIMEHeader attribute), 1040
pardir (in module os), 586
paren (2to3 fixer), 1583
parent (importlib.machinery.ModuleSpec attribute), 1774
parent (pyclbr.Class attribute), 1801
parent (pyclbr.Function attribute), 1800
parent (urllib.request.BaseHandler attribute), 1200
parent() (tkinter.ttk.Treeview method), 1428
parentNode (xml.dom.Node attribute), 1136
parents (collections.ChainMap attribute), 211
paretovariate() (in module random), 326
parse() (doctest.DocTestParser method), 1487
parse() (email.parser.BytesParser method), 1024
parse() (email.parser.Parser method), 1025
parse() (in module ast), 1789
parse() (in module cgi), 1179
parse() (in module xml.dom.minidom), 1145
parse() (in module xml.dom.pulldom), 1150
parse() (in module xml.etree.ElementTree), 1126
parse() (in module xml.sax), 1151
parse() (string.Formatter method), 98
parse() (urllib.robotparser.RobotFileParser method), 1219
parse() (xml.etree.ElementTree.ElementTree method), 1130
Parse() (xml.parsers.expat.xmlparser method), 1164
parse() (xml.sax.xmlreader.XMLReader method), 1159
parse_and_bind() (in module readline), 146
parse_args() (argparse.ArgumentParser method), 631
PARSE_COLNAMES (in module sqlite3), 439
parse_config_h() (in module sysconfig), 1679
PARSE_DECLTYPES (in module sqlite3), 439
parse_header() (in module cgi), 1179
parse_intermixed_args() (argparse.ArgumentParser method), 641
parse_known_args() (argparse.ArgumentParser method), 640
parse_known_intermixed_args() (argparse.ArgumentParser method), 641
parse_multipart() (in module cgi), 1179
parse_qs() (in module cgi), 1179
parse_qs() (in module urllib.parse), 1212
parse_qsl() (in module cgi), 1179
parse_qsl() (in module urllib.parse), 1213
parseaddr() (in module email.utils), 1069
parsebytes() (email.parser.BytesParser method), 1024
parsedate() (in module email.utils), 1070
parsedate_to_datetime() (in module email.utils), 1070
parsedate_tz() (in module email.utils), 1070
ParseError (class in xml.etree.ElementTree), 1133
ParseFile() (xml.parsers.expat.xmlparser method), 1164
ParseFlags() (in module imaplib), 1238
Parser (class in email.parser), 1024
parser (module), 1781
ParserCreate() (in module xml.parsers.expat), 1163
ParserError, 1784
ParseResult (class in urllib.parse), 1215
ParseResultBytes (class in urllib.parse), 1216
parsestr() (email.parser.Parser method), 1025
parseString() (in module xml.dom.minidom), 1145
parseString() (in module xml.dom.pulldom), 1150
parseString() (in module xml.sax), 1151
parsing
 Python source code, 1781
 URL, 1211
ParsingError, 517
partial (asyncio.IncompleteReadError attribute), 875
partial() (imaplib.IMAP4 method), 1240
partial() (in module functools), 354
partialmethod (class in functools), 355
parties (threading.Barrier attribute), 762
partition() (bytearray method), 57
partition() (bytes method), 57
partition() (str method), 48
pass_() (poplib.POP3 method), 1235
Paste, 1442
patch() (in module test.support), 1596
patch() (in module unittest.mock), 1537
patch.dict() (in module unittest.mock), 1541
patch.multiple() (in module unittest.mock), 1542
patch.object() (in module unittest.mock), 1540
patch.stopall() (in module unittest.mock), 1544
PATH, 576, 580, 586, 1173, 1180, 1182
path
 configuration file, 1742
 module search, 405, 1670, 1742
 operations, 367, 384
Path (class in pathlib), 377
path (http.cookiejar.Cookie attribute), 1291
path (http.server.BaseHTTPRequestHandler attribute), 1275
path (importlib.abc.FileLoader attribute), 1767
path (importlib.machinery.ExtensionFileLoader attribute), 1773
path (importlib.machinery.FileFinder attribute), 1771
path (importlib.machinery.SourceFileLoader attribute), 1772

path (importlib.machinery.SourcelessFileLoader attribute), 1772
path (in module sys), 1670
path (os.DirEntry attribute), 566
path based finder, 1908
Path browser, 1439
path entry, 1908
path entry finder, 1908
path entry hook, 1908
path() (in module importlib.resources), 1769
path_hook() (importlib.machinery.FileFinder class method), 1772
path_hooks (in module sys), 1670
path_importer_cache (in module sys), 1670
path_mtime() (importlib.abc.SourceLoader method), 1767
path_return_ok() (http.cookiejar.CookiePolicy method), 1288
path_stats() (importlib.abc.SourceLoader method), 1767
path_stats() (importlib.machinery.SourceFileLoader method), 1772
pathconf() (in module os), 563
pathconf_names (in module os), 563
PathEntryFinder (class in importlib.abc), 1763
PathFinder (class in importlib.machinery), 1771
pathlib (module), 367
PathLike (class in os), 543
path-like object, 1908
pathname2url() (in module urllib.request), 1194
pathsep (in module os), 586
Pattern (class in typing), 1463
pattern (re.error attribute), 118
pattern (re.Pattern attribute), 119
pause() (in module signal), 1005
pause_reading() (asyncio.ReadTransport method), 901
pause_writing() (asyncio.BaseProtocol method), 904
PAX_FORMAT (in module tarfile), 484
pax_headers (tarfile.TarFile attribute), 487
pax_headers (tarfile.TarInfo attribute), 488
pbkdf2_hmac() (in module hashlib), 527
pd() (in module turtle), 1368
Pdb (class in pdb), 1608, 1609
pdb (module), 1607
.pdbrc
 file, 1610
peek() (bz2.BZ2File method), 466
peek() (gzip.GzipFile method), 464
peek() (io.BufferedReader method), 596
peek() (lzma.LZMAFile method), 469
peek() (weakref.finalize method), 244
peer (smtplib.SMTPChannel attribute), 1259
PEM_cert_to_DER_cert() (in module ssl), 955
pen() (in module turtle), 1369
pencolor() (in module turtle), 1370
pending (ssl.MemoryBIO attribute), 982
pending() (ssl.SSLSocket method), 966
PendingDeprecationWarning, 94
pendown() (in module turtle), 1368
pensize() (in module turtle), 1369
penup() (in module turtle), 1369
PEP, 1908
PERCENT (in module token), 1794
PERCENTEQUAL (in module token), 1794
perf_counter() (in module time), 603
perf_counter_ns() (in module time), 604
Performance, 1622
PermissionError, 93
permutations() (in module itertools), 344
Persist() (msilib.SummaryInformation method), 1829
persistence, 415
persistent
 objects, 415
persistent_id (pickle protocol), 422
persistent_id() (pickle.Pickler method), 418
persistent_load (pickle protocol), 422
persistent_load() (pickle.Unpickler method), 419
PF_CAN (in module socket), 931
PF_PACKET (in module socket), 932
PF_RDS (in module socket), 932
pformat() (in module pprint), 254
pformat() (pprint.PrettyPrinter method), 255
PGO (in module test.support), 1587
phase() (in module cmath), 290
pi (in module cmath), 292
pi (in module math), 289
pickle
 module, 253, 428, 429, 432
pickle (module), 415
pickle() (in module copyreg), 428
PickleError, 418
Pickler (class in pickle), 418
pickletools (module), 1819
pickletools command line option
 -a, --annotate, 1820
 -l, --indentlevel=<num>, 1820
 -m, --memo, 1820
 -o, --output=<file>, 1820
 -p, --preamble=<preamble>, 1820
pickling
 objects, 415
PicklingError, 418
pid (asyncio.asyncio.subprocess.Process attribute), 870
pid (multiprocessing.Process attribute), 771
pid (subprocess.Popen attribute), 823

PIPE (in module subprocess), 815
 Pipe() (in module multiprocessing), 773
 pipe() (in module os), 552
 pipe2() (in module os), 552
 PIPE_BUF (in module select), 987
 pipe_connection_lost() (asyncio.SubprocessProtocol method), 906
 pipe_data_received() (asyncio.SubprocessProtocol method), 906
 PIPE_MAX_SIZE (in module test.support), 1588
 pipes (module), 1855
 PKG_DIRECTORY (in module imp), 1894
 pkgutil (module), 1753
 placeholder (textwrap.TextWrapper attribute), 142
 platform (in module sys), 1670
 platform (module), 708
 platform() (in module platform), 708
 PlaySound() (in module winsound), 1842
 plist
 file, 521
 plistlib (module), 521
 plock() (in module os), 578
 PLUS (in module token), 1794
 plus() (decimal.Context method), 309
 PLUSEQUAL (in module token), 1794
 pm() (in module pdb), 1609
 POINTER() (in module ctypes), 744
 pointer() (in module ctypes), 744
 polar() (in module cmath), 290
 Policy (class in email.policy), 1031
 poll() (in module select), 986
 poll() (multiprocessing.connection.Connection method), 777
 poll() (select.devpoll method), 988
 poll() (select.epoll method), 989
 poll() (select.poll method), 990
 poll() (subprocess.Popen method), 821
 PollSelector (class in selectors), 994
 Pool (class in multiprocessing.pool), 790
 pop() (array.array method), 240
 pop() (collections.deque method), 217
 pop() (dict method), 79
 pop() (frozenset method), 76
 pop() (mailbox.Mailbox method), 1085
 pop() (sequence method), 39
 POP3
 protocol, 1234
 POP3 (class in poplib), 1234
 POP3_SSL (class in poplib), 1234
 pop_alignment() (formatter.formatter method), 1822
 pop_all() (contextlib.ExitStack method), 1702
 POP_BLOCK (opcode), 1813
 POP_EXCEPT (opcode), 1813
 pop_font() (formatter.formatter method), 1822
 POP_JUMP_IF_FALSE (opcode), 1816
 POP_JUMP_IF_TRUE (opcode), 1816
 pop_margin() (formatter.formatter method), 1823
 pop_source() (shlex.shlex method), 1399
 pop_style() (formatter.formatter method), 1823
 POP_TOP (opcode), 1810
 Popen (class in subprocess), 817
 popen() (in module os), 579, 987
 popen() (in module platform), 710
 popitem() (collections.OrderedDict method), 225
 popitem() (dict method), 79
 popitem() (mailbox.Mailbox method), 1085
 popleft() (collections.deque method), 217
 poplib (module), 1234
 PopupMenu (class in tkinter.tix), 1435
 port (http.cookiejar.Cookie attribute), 1291
 port_specified (http.cookiejar.Cookie attribute), 1291
 portion, 1908
 pos (json.JSONDecodeError attribute), 1079
 pos (re.error attribute), 118
 pos (re.Match attribute), 122
 pos() (in module operator), 361
 pos() (in module turtle), 1367
 position (xml.etree.ElementTree.ParseError attribute), 1134
 position() (in module turtle), 1367
 positional argument, 1908
 POSIX
 I/O control, 1850
 threads, 836
 posix (module), 1845
 POSIX_FADV_DONTNEED (in module os), 552
 POSIX_FADV_NOREUSE (in module os), 552
 POSIX_FADV_NORMAL (in module os), 552
 POSIX_FADV_RANDOM (in module os), 552
 POSIX_FADV_SEQUENTIAL (in module os), 552
 POSIX_FADV_WILLNEED (in module os), 552
 posix_fadvise() (in module os), 552
 posix_fallocate() (in module os), 552
 POSIXLY_CORRECT, 643
 PosixPath (class in pathlib), 377
 post() (nntplib.NNTP method), 1249
 post() (osaudiodev.oss_audio_device method), 1337
 post_handshake_auth (ssl.SSLContext attribute), 974
 post_mortem() (in module pdb), 1609
 post_setup() (venv.EnvBuilder method), 1647
 postcmd() (cmd.Cmd method), 1393
 postloop() (cmd.Cmd method), 1393
 pow() (built-in function), 19
 pow() (in module math), 287

pow() (in module operator), 361
power() (decimal.Context method), 310
pp (pdb command), 1612
 pprint (module), 253
 pprint() (in module pprint), 254
 pprint() (pprint.PrettyPrinter method), 255
 prcal() (in module calendar), 210
 pread() (in module os), 552
 preadv() (in module os), 552
 preamble (email.message.EmailMessage attribute), 1022
 preamble (email.message.Message attribute), 1060
 precmd() (cmd.Cmd method), 1393
 prefix (in module sys), 1671
 prefix (xml.dom.Attr attribute), 1141
 prefix (xml.dom.Node attribute), 1137
 prefix (zipimport.zipimporter attribute), 1752
 PREFIXES (in module site), 1744
 prefixlen (ipaddress.IPv4Network attribute), 1312
 prefixlen (ipaddress.IPv6Network attribute), 1315
 preloop() (cmd.Cmd method), 1393
 prepare() (logging.handlers.QueueHandler method), 683
 prepare() (logging.handlers.QueueListener method), 684
 prepare_class() (in module types), 248
 prepare_input_source() (in module xml.sax.saxutils), 1158
 prepend() (pipes.Template method), 1856
 PrettyPrinter (class in pprint), 254
 prev() (tkinter.ttk.Treeview method), 1428
 previousSibling (xml.dom.Node attribute), 1136
 print (2to3 fixer), 1583
 print() (built-in function), 19
 print_callees() (pstats.Stats method), 1620
 print_callers() (pstats.Stats method), 1620
 print_directory() (in module cgi), 1179
 print_environ() (in module cgi), 1179
 print_environ_usage() (in module cgi), 1180
 print_exc() (in module traceback), 1716
 print_exc() (timeit.Timer method), 1624
 print_exception() (in module traceback), 1716
 PRINT_EXPR (opcode), 1812
 print_form() (in module cgi), 1179
 print_help() (argparse.ArgumentParser method), 640
 print_last() (in module traceback), 1716
 print_stack() (asyncio.Task method), 855
 print_stack() (in module traceback), 1716
 print_stats() (profile.Profile method), 1617
 print_stats() (pstats.Stats method), 1619
 print_tb() (in module traceback), 1715
 print_usage() (argparse.ArgumentParser method), 640
 print_usage() (optparse.OptionParser method), 1883
 print_version() (optparse.OptionParser method), 1872
 printable (in module string), 97
 printdir() (zipfile.ZipFile method), 477
 printf-style formatting, 51, 66
 PRIO_PGRP (in module os), 545
 PRIO_PROCESS (in module os), 545
 PRIO_USER (in module os), 545
 PriorityQueue (class in asyncio), 872
 PriorityQueue (class in queue), 833
 prlimit() (in module resource), 1857
 prmonth() (calendar.TextCalendar method), 207
 prmonth() (in module calendar), 210
 ProactorEventLoop (class in asyncio), 892
 process
 group, 544
 id, 544
 id of parent, 544
 killing, 578
 scheduling priority, 545, 546
 signalling, 578
 Process (class in multiprocessing), 770
 process() (logging.LoggerAdapter method), 656
 process_exited() (asyncio.SubprocessProtocol method), 906
 process_message() (smtpd.SMTPServer method), 1257
 process_request() (socketserver.BaseServer method), 1270
 process_time() (in module time), 604
 process_time_ns() (in module time), 604
 process_tokens() (in module tabnanny), 1800
 ProcessError, 772
 processes, light-weight, 836
 ProcessingInstruction() (in module xml.etree.ElementTree), 1126
 processingInstruction() (xml.sax.handler.ContentHandler method), 1156
 ProcessingInstructionHandler() (xml.parsers.expat.xmlparser method), 1166
 ProcessLookupError, 93
 processor time, 601, 604, 607
 processor() (in module platform), 709
 ProcessPoolExecutor (class in concurrent.futures), 810
 product() (in module itertools), 345
 Profile (class in profile), 1617
 profile (module), 1616
 profile function, 752, 1666, 1671
 profiler, 1666, 1671
 profiling, deterministic, 1614

ProgrammingError, 452
 Progressbar (class in `tkinter.ttk`), 1423
`prompt` (`cmd.Cmd` attribute), 1394
`prompt_user_passwd()`
 lib.request.FancyURLopener
 1210
 prompts, interpreter, 1671
`propagate` (`logging.Logger` attribute), 646
`property` (built-in class), 19
`property list`, 521
`property_declaraction_handler` (in module
`xml.sax.handler`), 1154
`property_dom_node` (in module `xml.sax.handler`),
 1154
`property_lexical_handler` (in module
`xml.sax.handler`), 1154
`property_xml_string` (in module `xml.sax.handler`),
 1154
`PropertyMock` (class in `unittest.mock`), 1533
`prot_c()` (`ftplib.FTP_TLS` method), 1233
`prot_p()` (`ftplib.FTP_TLS` method), 1233
`proto` (`socket.socket` attribute), 945
`protocol`
 CGI, 1175
 context management, 81
`copy`, 421
 FTP, 1210, 1228
 HTTP, 1175, 1210, 1220, 1222, 1274
 IMAP4, 1236
 IMAP4_SSL, 1236
 IMAP4_stream, 1236
 iterator, 36
 NNTP, 1243
 POP3, 1234
 SMTP, 1250
 Telnet, 1260
`Protocol` (class in `asyncio`), 903
`protocol` (`ssl.SSLContext` attribute), 974
`PROTOCOL_SSLv2` (in module `ssl`), 958
`PROTOCOL_SSLv3` (in module `ssl`), 958
`PROTOCOL_SSLv23` (in module `ssl`), 958
`PROTOCOL_TLS` (in module `ssl`), 958
`PROTOCOL_TLS_CLIENT` (in module `ssl`), 958
`PROTOCOL_TLS_SERVER` (in module `ssl`), 958
`PROTOCOL_TLSv1` (in module `ssl`), 958
`PROTOCOL_TLSv1_1` (in module `ssl`), 958
`PROTOCOL_TLSv1_2` (in module `ssl`), 959
`protocol_version` (`http.server.BaseHTTPRequestHandler`
 attribute), 1276
`PROTOCOL_VERSION` (imaplib.IMAP4 attribute), 1242
`ProtocolError` (class in `xmlrpc.client`), 1297
 provisional API, 1908
 provisional package, 1908
`proxy()` (in module `weakref`), 242
`proxyauth()` (`imaplib.IMAP4` method), 1240
`ProxyBasicAuthHandler` (class in `urllib.request`),
 1197
`ProxyDigestAuthHandler` (class in `urllib.request`),
 1197
`ProxyHandler` (class in `urllib.request`), 1196
`ProxyType` (in module `weakref`), 244
`ProxyTypes` (in module `weakref`), 244
`pryear()` (`calendar.TextCalendar` method), 207
`ps1` (in module `sys`), 1671
`ps2` (in module `sys`), 1671
`pstats` (module), 1618
`pstdev()` (in module `statistics`), 333
`pthread_getcpuclockid()` (in module `time`), 602
`pthread_kill()` (in module `signal`), 1005
`pthread_sigmask()` (in module `signal`), 1005
`pthreads`, 836
`pty`
 module, 552
`pty` (module), 1852
`pu()` (in module `turtle`), 1369
`publicId` (`xml.dom.DocumentType` attribute), 1138
`PullDom` (class in `xml.dom.pulldom`), 1150
`punctuation` (in module `string`), 97
`punctuation_chars` (`shlex.shlex` attribute), 1400
`PurePath` (class in `pathlib`), 369
`PurePath.anchor` (in module `pathlib`), 373
`PurePath.drive` (in module `pathlib`), 372
`PurePath.name` (in module `pathlib`), 374
`PurePath.parent` (in module `pathlib`), 373
`PurePath.parents` (in module `pathlib`), 373
`PurePath.parts` (in module `pathlib`), 372
`PurePath.root` (in module `pathlib`), 372
`PurePath.stem` (in module `pathlib`), 374
`PurePath.suffix` (in module `pathlib`), 374
`PurePath.suffixes` (in module `pathlib`), 374
`PurePosixPath` (class in `pathlib`), 370
`PureProxy` (class in `smtpd`), 1258
`PureWindowsPath` (class in `pathlib`), 370
`purge()` (in module `re`), 118
`Purpose.CLIENT_AUTH` (in module `ssl`), 962
`Purpose.SERVER_AUTH` (in module `ssl`), 962
`push()` (`asynchat.async_chat` method), 1001
`push()` (`code.InteractiveConsole` method), 1749
`push()` (`contextlib.ExitStack` method), 1702
`push_alignment()` (`formatter.formatter` method),
 1822
`push_async_callback()` (`contextlib.AsyncExitStack`
 method), 1702
`push_async_exit()` (`contextlib.AsyncExitStack`
 method), 1702
`push_font()` (`formatter.formatter` method), 1822
`push_margin()` (`formatter.formatter` method), 1822

push_source() (shlex.shlex method), 1399
push_style() (formatter.formatter method), 1823
push_token() (shlex.shlex method), 1399
push_with_producer() (asynchchat.async_chat method), 1001
pushbutton() (msilib.Dialog method), 1832
put() (asyncio.Queue method), 872
put() (multiprocessing.Queue method), 774
put() (multiprocessing.SimpleQueue method), 775
put() (queue.Queue method), 834
put() (queue.SimpleQueue method), 835
put_nowait() (asyncio.Queue method), 872
put_nowait() (multiprocessing.Queue method), 774
put_nowait() (queue.Queue method), 834
put_nowait() (queue.SimpleQueue method), 835
putch() (in module msvert), 1833
putenv() (in module os), 545
putheader() (http.client.HTTPConnection method), 1226
putp() (in module curses), 690
putrequest() (http.client.HTTPConnection method), 1225
putwch() (in module msvcr), 1833
putwin() (curses.window method), 697
pvariance() (in module statistics), 333
pwd
 module, 386
pwd (module), 1846
pwd() (ftplib.FTP method), 1233
pwrite() (in module os), 553
pwritev() (in module os), 553
py_compile (module), 1801
PY_COMPILLED (in module imp), 1893
PY_FROZEN (in module imp), 1894
py_object (class in ctypes), 748
PY_SOURCE (in module imp), 1893
PycInvalidationMode (class in py_compile), 1802
pyclbr (module), 1800
PyCompileError, 1801
PyDLL (class in ctypes), 737
pydoc (module), 1467
pyexpat
 module, 1163
PYFUNCTYPE() (in module ctypes), 740
Python 3000, 1908
Python Editor, 1438
Python Enhancement Proposals
 PEP 1, 1908
 PEP 205, 244
 PEP 227, 1723
 PEP 235, 1760
 PEP 237, 53, 67
 PEP 238, 1723, 1903
 PEP 249, 437, 439
 PEP 255, 1723
 PEP 263, 1760, 1796
 PEP 273, 1751
 PEP 278, 1911
 PEP 282, 412, 661
 PEP 292, 106
 PEP 302, 25, 405, 1670, 1751, 1753, 1757, 1760, 1762, 1763, 1765, 1766, 1894, 1903, 1906
 PEP 305, 493
 PEP 307, 416
 PEP 324, 814
 PEP 328, 25, 1723, 1760
 PEP 338, 1759
 PEP 342, 229
 PEP 343, 1707, 1723, 1901
 PEP 362, 1735, 1900, 1908
 PEP 366, 1759, 1760
 PEP 370, 1745
 PEP 378, 101
 PEP 383, 160, 927
 PEP 393, 166, 171, 1669
 PEP 397, 1646
 PEP 405, 1643
 PEP 411, 1667, 1673, 1674, 1908
 PEP 420, 1760, 1903, 1907, 1908
 PEP 421, 1668
 PEP 428, 368
 PEP 442, 1725
 PEP 443, 1904
 PEP 451, 1670, 1754, 17581760, 1903
 PEP 453, 1642
 PEP 461, 67
 PEP 468, 225
 PEP 475, 19, 93, 551, 554, 555, 583, 604, 939, 941944, 987990, 994, 1007
 PEP 479, 91, 1723
 PEP 483, 1451
 PEP 484, 1451, 1453, 1458, 1459, 1465, 1899, 1903, 1910, 1911
 PEP 485, 286, 292
 PEP 488, 1760, 1774, 1775, 1802
 PEP 489, 1760, 1770, 1773
 PEP 492, 230, 1667, 1674, 1741, 1900, 1901
 PEP 498, 1902
 PEP 506, 537
 PEP 515, 102
 PEP 519, 1908
 PEP 524, 587
 PEP 525, 230, 1667, 1673, 1742, 1900
 PEP 526, 1451, 1464, 1466, 1687, 1693, 1899, 1911
 PEP 529, 1665, 1674
 PEP 552, 1760, 1802
 PEP 557, 1687

PEP 560, 249
 PEP 563, 1723
 PEP 567, 839, 878, 897
 PEP 3101, 98
 PEP 3105, 1723
 PEP 3112, 1723
 PEP 3115, 249
 PEP 3116, 1911
 PEP 3118, 69
 PEP 3119, 231, 1709
 PEP 3120, 1760
 PEP 3141, 281, 1709
 PEP 3147, 1758, 1760, 1774, 1775, 1802, 1804,
 1805, 1892, 1893
 PEP 3148, 813
 PEP 3149, 1659
 PEP 3151, 94, 930, 985, 1857
 PEP 3154, 416
 PEP 3155, 1909
 PEP 3333, 11831188, 1191
 python_branch() (in module platform), 709
 python_build() (in module platform), 709
 python_compiler() (in module platform), 709
 PYTHON_DOM, 1135
 python_implementation() (in module platform), 709
 python_is_optimized() (in module test.support),
 1588
 python_revision() (in module platform), 709
 python_version() (in module platform), 709
 python_version_tuple() (in module platform), 709
 PYTHONASYNCIODEBUG, 889, 924
 PYTHONBREAKPOINT, 1660
 PYTHONDEVMODE, 1599
 PYTHONDOKS, 1468
 PYTHONDONTWRITEBYTECODE, 1661
 PYTHONFAULTHANDLER, 1605
 PYTHONHOME, 1599
 Pythonic, 1908
 PYTHONIOENCODING, 1675
 PYTHONLEGACYWINDOWSFSENCODING,
 1674
 PYTHONNOUSERSITE, 1744
 PYTHONPATH, 1180, 1599, 1670
 PYTHONSTARTUP, 149, 1445, 1669, 1743
 PYTHONTRACEMALLOC, 1630, 1635
 PYTHONUSERBASE, 1744
 PYTHONUSERSITE, 1599
 PYTHONWARNINGS, 1683
 PyZipFile (class in zipfile), 478

Q

-q
 compileall command line option, 1803
 qflush() (in module curses), 690

QName (class in xml.etree.ElementTree), 1131
 qsize() (asyncio.Queue method), 872
 qsize() (multiprocessing.Queue method), 774
 qsize() (queue.Queue method), 834
 qsize() (queue.SimpleQueue method), 835
 qualified name, 1909
 quantize() (decimal.Context method), 310
 quantize() (decimal.Decimal method), 303
 QueryInfoKey() (in module winreg), 1837
 QueryReflectionKey() (in module winreg), 1839
 QueryValue() (in module winreg), 1837
 QueryValueEx() (in module winreg), 1838
 Queue (class in asyncio), 871
 Queue (class in multiprocessing), 773
 Queue (class in queue), 833
 queue (module), 832
 queue (sched.scheduler attribute), 832
 Queue() (multiprocessing.managers.SyncManager
 method), 786
 QueueEmpty, 872
 QueueFull, 872
 QueueHandler (class in logging.handlers), 683
 QueueListener (class in logging.handlers), 683
 quick_ratio() (difflib.SequenceMatcher method), 134
 quit (built-in variable), 28
 quit (pdb command), 1614
 quit() (ftplib.FTP method), 1233
 quit() (nntplib.NNTP method), 1245
 quit() (poplib.POP3 method), 1235
 quit() (smtplib.SMTP method), 1255
 quopri (module), 1109
 quote() (in module email.utils), 1069
 quote() (in module shlex), 1397
 quote() (in module urllib.parse), 1216
 QUOTE_ALL (in module csv), 496
 quote_from_bytes() (in module urllib.parse), 1216
 QUOTE_MINIMAL (in module csv), 496
 QUOTE_NONE (in module csv), 496
 QUOTE_NONNUMERIC (in module csv), 496
 quote_plus() (in module urllib.parse), 1216
 quoteattr() (in module xml.sax.saxutils), 1158
 quoted-printable
 encoding, 1109
 quotes (shlex.shlex attribute), 1400
 quoting (csv.Dialect attribute), 497

R

-r
 compileall command line option, 1804
 -r N, --repeat=N
 timeit command line option, 1625
 -R, --no-report
 trace command line option, 1628

-r, --report
 trace command line option, 1628

R_OK (in module os), 558

radians() (in module math), 288

radians() (in module turtle), 1368

RadioButtonGroup (class in msilib), 1831

radiogroup() (msilib.Dialog method), 1832

radix() (decimal.Context method), 310

radix() (decimal.Decimal method), 303

RADIXCHAR (in module locale), 1352

raise
 statement, 87

raise (2to3 fixer), 1583

raise_on_defect (email.policy.Policy attribute), 1031

RAISE_VARARGS (opcode), 1817

RAND_add() (in module ssl), 954

RAND_bytes() (in module ssl), 953

RAND_egd() (in module ssl), 954

RAND_pseudo_bytes() (in module ssl), 953

RAND_status() (in module ssl), 954

randbelow() (in module secrets), 537

randbits() (in module secrets), 537

randint() (in module random), 324

random (module), 323

random() (in module random), 325

randrange() (in module random), 324

range
 object, 42

range (built-in class), 42

RARROW (in module token), 1794

ratecv() (in module audioop), 1323

ratio() (difflib.SequenceMatcher method), 134

Rational (class in numbers), 281

raw (io.BufferedIOBase attribute), 593

raw() (in module curses), 690

raw_data_manager (in module email.contentmanager), 1043

raw_decode() (json.JSONDecoder method), 1077

raw_input (2to3 fixer), 1583

raw_input() (code.InteractiveConsole method), 1749

RawArray() (in module multiprocessing.sharedctypes), 782

RawConfigParser (class in configparser), 516

RawDescriptionHelpFormatter (class in argparse), 615

RawIOBase (class in io), 592

RawPen (class in turtle), 1386

RawTextHelpFormatter (class in argparse), 615

RawTurtle (class in turtle), 1386

RawValue() (in module multiprocessing.sharedctypes), 782

RBRACE (in module token), 1794

rcpttos (smtpd.SMTPChannel attribute), 1259

re
 module, 44, 404

re (module), 108

re (re.Match attribute), 122

read() (asyncio.StreamReader method), 858

read() (chunk.Chunk method), 1333

read() (codecs.StreamReader method), 164

read() (configparser.ConfigParser method), 514

read() (http.client.HTTPResponse method), 1226

read() (imaplib.IMAP4 method), 1240

read() (in module os), 554

read() (io.BufferedIOBase method), 593

read() (io.BufferedReader method), 596

read() (io.RawIOBase method), 592

read() (io.TextIOBase method), 597

read() (mimetypes.MimeTypes method), 1103

read() (mmap.mmap method), 1011

read() (osaudiodev.oss_audio_device method), 1336

read() (ssl.MemoryBIO method), 982

read() (ssl.SSLSocket method), 963

read() (urllib.robotparser.RobotFileParser method), 1219

read() (zipfile.ZipFile method), 477

read1() (io.BufferedIOBase method), 593

read1() (io.BufferedReader method), 596

read1() (io.BytesIO method), 595

read_all() (telnetlib.Telnet method), 1260

read_binary() (in module importlib.resources), 1769

read_byte() (mmap.mmap method), 1011

read_bytes() (pathlib.Path method), 381

read_dict() (configparser.ConfigParser method), 514

read_eager() (telnetlib.Telnet method), 1261

read_environ() (in module wsgiref.handlers), 1192

read_events() (xml.etree.ElementTree.XMLPullParser method), 1133

read_file() (configparser.ConfigParser method), 514

read_history_file() (in module readline), 146

read_init_file() (in module readline), 146

read_lazy() (telnetlib.Telnet method), 1261

read_mime_types() (in module mimetypes), 1101

read_sb_data() (telnetlib.Telnet method), 1261

read_some() (telnetlib.Telnet method), 1260

read_string() (configparser.ConfigParser method), 514

read_text() (in module importlib.resources), 1769

read_text() (pathlib.Path method), 381

read_token() (shlex.shlex method), 1399

read_until() (telnetlib.Telnet method), 1260

read_very_eager() (telnetlib.Telnet method), 1261

read_very_lazy() (telnetlib.Telnet method), 1261

read_windows_registry() (mimetypes.MimeTypes method), 1103

READABLE (in module tkinter), 1414

readable() (asyncore.dispatcher method), 997

readable() (`io.IOBase` method), 591
readall() (`io.RawIOBase` method), 592
reader() (in module `csv`), 493
ReadError, 483
readexactly() (`asyncio.StreamReader` method), 858
readfp() (`configparser.ConfigParser` method), 516
readfp() (`mimetypes.MimeTypes` method), 1103
readframes() (`aifc.aifc` method), 1325
readframes() (`sunau.AU_read` method), 1328
readframes() (`wave.Wave_read` method), 1330
readinto() (`http.client.HTTPResponse` method), 1226
readinto() (`io.BufferedIOBase` method), 594
readinto() (`io.RawIOBase` method), 593
readinto1() (`io.BufferedIOBase` method), 594
readinto1() (`io.BytesIO` method), 595
readline (module), 145
readline() (`asyncio.StreamReader` method), 858
readline() (`codecs.StreamReader` method), 164
readline() (`imaplib.IMAP4` method), 1240
readline() (`io.IOBase` method), 591
readline() (`io.TextIOBase` method), 597
readline() (`mmap.mmap` method), 1011
readlines() (`codecs.StreamReader` method), 164
readlines() (`io.IOBase` method), 591
readlink() (in module `os`), 563
readmodule() (in module `pyclbr`), 1800
readmodule_ex() (in module `pyclbr`), 1800
readonly (memoryview attribute), 73
readPlist() (in module `plistlib`), 523
readPlistFromBytes() (in module `plistlib`), 523
ReadTransport (class in `asyncio`), 899
readuntil() (`asyncio.StreamReader` method), 858
readv() (in module `os`), 555
ready() (`multiprocessing.pool.AsyncResult` method), 792
Real (class in `numbers`), 281
real (`numbers.Complex` attribute), 281
Real Media File Format, 1332
real_max_memuse (in module `test.support`), 1588
real_quick_ratio() (`difflib.SequenceMatcher` method), 135
realpath() (in module `os.path`), 388
REALTIME_PRIORITY_CLASS (in module `subprocess`), 825
reap_children() (in module `test.support`), 1595
reap_threads() (in module `test.support`), 1594
reason (`http.client.HTTPResponse` attribute), 1227
reason (`ssl.SSLError` attribute), 952
reason (`UnicodeError` attribute), 92
reason (`urllib.error.HTTPError` attribute), 1218
reason (`urllib.error.URLError` attribute), 1218
reattach() (`tkinter.ttk.Treeview` method), 1428
recontrols() (`ossaudiodev.oss_mixer_device` method), 1339
received_data (`smtplib.SMTPChannel` attribute), 1259
received_lines (`smtplib.SMTPChannel` attribute), 1259
recent() (`imaplib.IMAP4` method), 1240
reconfigure() (`io.TextIOWrapper` method), 598
record_original_stdout() (in module `test.support`), 1591
records (`unittest.TestCase` attribute), 1507
rect() (in module `cmath`), 290
rectangle() (in module `curses.textpad`), 703
RecursionError, 90
recursive_repr() (in module `reprlib`), 259
recv() (`asyncore.dispatcher` method), 998
recv() (`multiprocessing.connection.Connection` method), 777
recv() (`socket.socket` method), 941
recv_bytes() (`multiprocessing.connection.Connection` method), 777
recv_bytes_into() (`multiprocessing.connection.Connection` method), 778
recv_into() (`socket.socket` method), 943
recvfrom() (`socket.socket` method), 941
recvfrom_into() (`socket.socket` method), 942
recvmsg() (`socket.socket` method), 941
recvmsg_into() (`socket.socket` method), 942
redirect_request() (`urlib.request.HTTPRedirectHandler` method), 1201
redirect_stderr() (in module `contextlib`), 1700
redirect_stdout() (in module `contextlib`), 1699
redisplay() (in module `readline`), 146
redrawln() (`curses.window` method), 697
redrawwin() (`curses.window` method), 697
reduce (`2to3 fixer`), 1583
reduce() (in module `functools`), 355
ref (class in `weakref`), 241
refcount_test() (in module `test.support`), 1594
reference count, 1909
ReferenceError, 90, 244
ReferenceType (in module `weakref`), 244
refold_source (`email.policy.EmailPolicy` attribute), 1033
refresh() (`curses.window` method), 697
REG_BINARY (in module `winreg`), 1840
REG_DWORD (in module `winreg`), 1840
REG_DWORD_BIG_ENDIAN (in module `winreg`), 1841
REG_DWORD_LITTLE_ENDIAN (in module `winreg`), 1840
REG_EXPAND_SZ (in module `winreg`), 1841

REG_FULL_RESOURCE_DESCRIPTOR (in module winreg), 1841
REG_LINK (in module winreg), 1841
REG_MULTI_SZ (in module winreg), 1841
REG_NONE (in module winreg), 1841
REG_QWORD (in module winreg), 1841
REG_QWORD_LITTLE_ENDIAN (in module winreg), 1841
REG_RESOURCE_LIST (in module winreg), 1841
REG_RESOURCE_REQUIREMENTS_LIST (in module winreg), 1841
REG_SZ (in module winreg), 1841
register() (abc.ABCMeta method), 1710
register() (in module atexit), 1714
register() (in module codecs), 158
register() (in module faulthandler), 1607
register() (in module webbrowser), 1174
register() (multiprocessing.managers.BaseManager method), 785
register() (select.devpoll method), 987
register() (select.epoll method), 989
register() (selectors.BaseSelector method), 993
register() (select.poll method), 989
register_adapter() (in module sqlite3), 440
register_archive_format() (in module shutil), 412
register_at_fork() (in module os), 579
register_converter() (in module sqlite3), 440
register_defect() (email.policy.Policy method), 1032
register_dialect() (in module csv), 494
register_error() (in module codecs), 160
register_function() (xmlrpc.server.CGIXMLRPCRequestHandler method), 1304
register_function() (xmlrpc.server.SimpleXMLRPCServer method), 1301
register_instance() (xmlrpc.server.CGIXMLRPCRequestHandler method), 1305
register_instance() (xmlrpc.server.SimpleXMLRPCServer method), 1301
register_introspection_functions() (xmlrpc.server.CGIXMLRPCRequestHandler method), 1305
register_introspection_functions() (xmlrpc.server.SimpleXMLRPCServer method), 1302
register_multicall_functions() (xmlrpc.server.CGIXMLRPCRequestHandler method), 1305
register_multicall_functions() (xmlrpc.server.SimpleXMLRPCServer method), 1302

register_namespace() (in module xml.etree.ElementTree), 1126
register_optionflag() (in module doctest), 1478
register_shape() (in module turtle), 1384
register_unpack_format() (in module shutil), 412
registerDOMImplementation() (in module xml.dom), 1135
registerResult() (in module unittest), 1521
regular package, 1909
relative URL, 1211
relative_to() (pathlib.PurePath method), 376
release() (_thread.lock method), 837
release() (asyncio.Condition method), 865
release() (asyncio.Lock method), 863
release() (asyncio.Semaphore method), 866
release() (in module platform), 709
release() (logging.Handler method), 650
release() (memoryview method), 70
release() (multiprocessing.Lock method), 779
release() (multiprocessing.RLock method), 780
release() (threading.Condition method), 758
release() (threading.Lock method), 755
release() (threading.RLock method), 756
release() (threading.Semaphore method), 759
release_lock() (in module imp), 1893
reload (2to3 fixer), 1583
reload() (in module imp), 1891
reload() (in module importlib), 1761
relpath() (in module os.path), 388
remainder() (decimal.Context method), 310
remainder() (in module math), 286
remainder_near() (decimal.Context method), 310
remainder_near() (decimal.Decimal method), 304
RemoteDisconnected, 1224
remove() (array.array method), 240
remove() (collections.deque method), 217
remove() (frozenset method), 76
remove() (in module os), 563
remove() (mailbox.Mailbox method), 1084
remove() (mailbox.MH method), 1089
remove() (sequence method), 39
remove() (xml.etree.ElementTree.Element method), 1129
remove_child_handler() (asyncio.AbstractChildWatcher method), 914
remove_done_callback() (asyncio.Future method), 897
remove_done_callback() (asyncio.Task method), 855
remove_flag() (mailbox.MaildirMessage method), 1092
remove_flag() (mailbox.mboxMessage method), 1094

remove_flag() (mailbox.MMDFMessage method), 1098
remove_folder() (mailbox.Maildir method), 1087
remove_folder() (mailbox.MH method), 1088
remove_header() (urllib.request.Request method), 1199
remove_history_item() (in module readline), 147
remove_label() (mailbox.BabylMessage method), 1096
remove_option() (configparser.ConfigParser method), 515
remove_option() (optparse.OptionParser method), 1881
remove_pyc() (msilib.Directory method), 1831
remove_reader() (asyncio.loop method), 884
remove_section() (configparser.ConfigParser method), 515
remove_sequence() (mailbox.MHMessage method), 1095
remove_signal_handler() (asyncio.loop method), 886
remove_writer() (asyncio.loop method), 884
removeAttribute() (xml.dom.Element method), 1140
removeAttributeNode() (xml.dom.Element method), 1140
removeAttributeNS() (xml.dom.Element method), 1140
removeChild() (xml.dom.Node method), 1138
removedirs() (in module os), 563
removeFilter() (logging.Handler method), 650
removeFilter() (logging.Logger method), 648
removeHandler() (in module unittest), 1521
removeHandler() (logging.Logger method), 649
removeResult() (in module unittest), 1521
removexattr() (in module os), 575
rename() (ftplib.FTP method), 1232
rename() (imaplib.IMAP4 method), 1240
rename() (in module os), 564
rename() (pathlib.Path method), 382
renames (2to3 fixer), 1583
renames() (in module os), 564
reopenIfNeeded()
 ([logging.handlers.WatchedFileHandler](#) method), 674
reorganize() (dbm.gnu.gdbm method), 435
repeat() (in module itertools), 346
repeat() (in module timeit), 1623
repeat() (timeit.Timer method), 1624
repetition
 operation, 37
replace() (bytearray method), 57
replace() (bytes method), 57
replace() (curses.panel.Panel method), 707
replace() (datetime.date method), 181
replace() (datetime.datetime method), 187
replace() (datetime.time method), 193
replace() (in module dataclasses), 1692
replace() (in module os), 564
replace() (inspect.Parameter method), 1734
replace() (inspect.Signature method), 1732
replace() (pathlib.Path method), 382
replace() (str method), 48
replace_errors() (in module codecs), 160
replace_header() ([email.message.EmailMessage](#) method), 1017
replace_header() ([email.message.Message](#) method), 1057
replace_history_item() (in module readline), 147
replace_whitespace ([textwrap.TextWrapper](#) attribute), 141
replaceChild() (xml.dom.Node method), 1138
ReplacePackage() (in module modulefinder), 1756
report() (filecmp.dircmp method), 397
report() (modulefinder.ModuleFinder method), 1756
REPORT_CDIFF (in module doctest), 1477
report_failure() (doctest.DocTestRunner method), 1487
report_full_closure() (filecmp.dircmp method), 397
REPORT_NDIFF (in module doctest), 1477
REPORT_ONLY_FIRST_FAILURE (in module doctest), 1477
report_partial_closure() (filecmp.dircmp method), 397
report_start() (doctest.DocTestRunner method), 1487
report_success() (doctest.DocTestRunner method), 1487
REPORT_UDIFF (in module doctest), 1477
report_unexpected_exception()
 (doctest.DocTestRunner method), 1488
REPORTING_FLAGS (in module doctest), 1478
repr (2to3 fixer), 1583
Repr (class in [reprlib](#)), 259
repr() (built-in function), 21
repr() (in module [reprlib](#)), 259
repr() ([reprlib.Repr](#) method), 260
repr1() ([reprlib.Repr](#) method), 260
reprlib (module), 259
Request (class in [urllib.request](#)), 1195
request() ([http.client.HTTPConnection](#) method), 1224
request_queue_size ([socketserver.BaseServer](#) attribute), 1269
request_rate() ([urllib.robotparser.RobotFileParser](#) method), 1219
request_uri() (in module [wsgiref.util](#)), 1184
request_version ([http.server.BaseHTTPRequestHandler](#) attribute), 1275

RequestHandlerClass (socketserver.BaseServer attribute), 1269
requestline (http.server.BaseHTTPRequestHandler attribute), 1275
requires() (in module test.support), 1589
requires_bz2() (in module test.support), 1593
requires_docstrings() (in module test.support), 1593
requires_freebsd_version() (in module test.support), 1593
requires_gzip() (in module test.support), 1593
requires_IEEE_754() (in module test.support), 1593
requires_linux_version() (in module test.support), 1593
requires_lzma() (in module test.support), 1593
requires_mac_version() (in module test.support), 1593
requires_resource() (in module test.support), 1593
requires_zlib() (in module test.support), 1593
reserved (zipfile.ZipInfo attribute), 480
RESERVED_FUTURE (in module uuid), 1265
RESERVED_MICROSOFT (in module uuid), 1265
RESERVED_NCS (in module uuid), 1265
reset() (bdb.Bdb method), 1602
reset() (codecs.IncrementalDecoder method), 163
reset() (codecs.IncrementalEncoder method), 162
reset() (codecs.StreamReader method), 165
reset() (codecs.StreamWriter method), 164
reset() (contextvars.ContextVar method), 840
reset() (html.parser.HTMLParser method), 1113
reset() (in module turtle), 1372, 1379
reset() (osaudiodev.oss_audio_device method), 1337
reset() (pipes.Template method), 1856
reset() (threading.Barrier method), 762
reset() (xdrlib.Packer method), 519
reset() (xdrlib.Unpacker method), 520
reset() (xml.dom.pulldom.DOMEventStream method), 1151
reset() (xml.sax.xmlreader.IncrementalParser method), 1161
reset_mock() (unittest.mock.Mock method), 1526
reset_prog_mode() (in module curses), 690
reset_shell_mode() (in module curses), 690
resetbuffer() (code.InteractiveConsole method), 1749
resetlocale() (in module locale), 1354
resetscreen() (in module turtle), 1379
resetty() (in module curses), 690
resetwarnings() (in module warnings), 1687
resize() (curses.window method), 697
resize() (in module ctypes), 744
resize() (mmap.mmap method), 1011
resize_term() (in module curses), 690
resizemode() (in module turtle), 1374
resizeterm() (in module curses), 690
resolution (datetime.date attribute), 180
resolution (datetime.datetime attribute), 185
resolution (datetime.time attribute), 192
resolution (datetime.timedelta attribute), 177
resolve() (pathlib.Path method), 382
resolve_bases() (in module types), 249
resolve_name() (in module importlib.util), 1775
resolveEntity() (xml.sax.handler.EntityResolver method), 1157
Resource (in module importlib.resources), 1768
resource (module), 1856
resource_path() (importlib.abc.ResourceReader method), 1765
ResourceDenied, 1587
ResourceLoader (class in importlib.abc), 1765
ResourceReader (class in importlib.abc), 1764
ResourceWarning, 94
response (nntplib.NNTPError attribute), 1244
response() (imaplib.IMAP4 method), 1240
ResponseNotReady, 1223
responses (http.server.BaseHTTPRequestHandler attribute), 1276
responses (in module http.client), 1224
restart (pdb command), 1613
restore() (in module difflib), 131
restype (ctypes._FuncPtr attribute), 739
result() (asyncio.Future method), 896
result() (asyncio.Task method), 854
result() (concurrent.futures.Future method), 811
results() (trace.Trace method), 1629
resume_reading() (asyncio.ReadTransport method), 901
resume_writing() (asyncio.BaseProtocol method), 904
retr() (poplib.POP3 method), 1235
retrbinary() (ftplib.FTP method), 1231
retrieve() (urllib.request.URLopener method), 1209
retrlines() (ftplib.FTP method), 1231
return (pdb command), 1612
return_annotation (inspect.Signature attribute), 1732
return_ok() (http.cookiejar.CookiePolicy method), 1287
RETURN_VALUE (opcode), 1813
return_value (unittest.mock.Mock attribute), 1528
returncode (asyncio.asyncio.subprocess.Process attribute), 870
returncode (subprocess.CalledProcessError attribute), 816
returncode (subprocess.CompletedProcess attribute), 815
returncode (subprocess.Popen attribute), 823
reverse() (array.array method), 240
reverse() (collections.deque method), 217

- reverse() (in module `audioop`), 1323
 reverse() (sequence method), 39
 reverse_order() (`pstats.Stats` method), 1619
 reverse_pointer (`ipaddress.IPv4Address` attribute),
 1308
 reverse_pointer (`ipaddress.IPv6Address` attribute),
 1309
 reversed() (built-in function), 21
 Reversible (class in `collections.abc`), 229
 Reversible (class in `typing`), 1459
 revert() (`http.cookiejar.FileCookieJar` method), 1287
 rewind() (`aifc.aifc` method), 1325
 rewind() (`sunau.AU_read` method), 1328
 rewind() (`wave.Wave_read` method), 1330
 RFC
 RFC 821, 1250, 1252
 RFC 822, 605, 1045, 1063, 1226, 1253, 1254,
 1256, 1345
 RFC 854, 1260
 RFC 959, 1229, 1232
 RFC 977, 1243
 RFC 1014, 519
 RFC 1123, 605
 RFC 1321, 525
 RFC 1422, 975, 985
 RFC 1521, 1106, 1109
 RFC 1522, 1108, 1109
 RFC 1524, 1082
 RFC 1730, 1236
 RFC 1738, 1218
 RFC 1750, 954
 RFC 1766, 1353
 RFC 1808, 1211, 1218
 RFC 1832, 519
 RFC 1869, 1250, 1252
 RFC 1870, 1257, 1259
 RFC 1939, 1234
 RFC 2045, 1013, 1018, 1040, 1041, 1057, 1058,
 1064, 1104, 1106
 RFC 2045#section-6.8, 1296
 RFC 2046, 1013, 1044, 1064
 RFC 2047, 1013, 1033, 1038, 1039, 1064, 1065,
 1069
 RFC 2060, 1236, 1241
 RFC 2068, 1280
 RFC 2104, 535
 RFC 2109, 12801282, 1284, 1285, 12891291
 RFC 2183, 1013, 1019, 1059
 RFC 2231, 1013, 1017, 1018, 1056, 1058, 1064,
 1071
 RFC 2295, 1221
 RFC 2342, 1240
 RFC 2368, 1218
 RFC 2373, 1308, 1309
 RFC 2396, 1213, 1216, 1218
 RFC 2397, 1204
 RFC 2449, 1235
 RFC 2518, 1220
 RFC 2595, 1234, 1236
 RFC 2616, 1185, 1188, 1201, 1202, 1209, 1218
 RFC 2732, 1217
 RFC 2774, 1221
 RFC 2818, 954
 RFC 2821, 1013
 RFC 2822, 605, 1055, 10631065, 1069, 1070,
 1091, 1276
 RFC 2964, 1285
 RFC 2965, 1195, 1198, 1284, 1285, 12871290,
 1292
 RFC 2980, 1243, 1249
 RFC 3056, 1310
 RFC 3171, 1308
 RFC 3229, 1221
 RFC 3280, 964
 RFC 3330, 1309
 RFC 3454, 144
 RFC 3490, 171173
 RFC 3490#section-3.1, 173
 RFC 3492, 171, 172
 RFC 3493, 950
 RFC 3501, 1242
 RFC 3542, 937
 RFC 3548, 1103, 1104, 1107
 RFC 3659, 1232
 RFC 3879, 1310
 RFC 3927, 1309
 RFC 3977, 1243, 1245, 1247, 1249
 RFC 3986, 1212, 1214, 1216, 1217
 RFC 4086, 985
 RFC 4122, 12621265
 RFC 4180, 493
 RFC 4193, 1310
 RFC 4217, 1229
 RFC 4291, 1309
 RFC 4380, 1310
 RFC 4627, 1072, 1080
 RFC 4642, 1244
 RFC 4918, 1221
 RFC 4954, 1253
 RFC 5161, 1239
 RFC 5233, 1013, 1052
 RFC 5246, 962, 985
 RFC 5280, 954, 955, 985
 RFC 5321, 1042, 1257
 RFC 5322, 1014, 1024, 1027, 1028, 1031, 1033,
 1034, 1036, 1037, 1039, 1042, 1255
 RFC 5424, 679
 RFC 5735, 1309

RFC 5842, 1221
RFC 5929, 966
RFC 6066, 961, 971, 985
RFC 6125, 954
RFC 6152, 1257
RFC 6531, 1015, 1033, 1250, 1257, 1258
RFC 6532, 1013, 1014, 1024, 1033
RFC 6585, 1221
RFC 6855, 1239
RFC 6856, 1236
RFC 7159, 1072, 1079, 1080
RFC 7230, 1195, 1226
RFC 7231, 1220, 1221
RFC 7232, 1221
RFC 7233, 1220, 1221
RFC 7235, 1221
RFC 7238, 1221
RFC 7301, 960, 970
RFC 7525, 985
RFC 7540, 1221
RFC 7693, 528
RFC 7914, 528
rfc2109 (http.cookiejar.Cookie attribute), 1291
rfc2109_as_netscape (http.cookiejar.DefaultCookiePolicy method(), 1233
attribute), 1289
rfc2965 (http.cookiejar.CookiePolicy attribute), 1288
RFC_4122 (in module uuid), 1265
rfile (http.server.BaseHTTPRequestHandler attribute), 1276
rfind() (bytearray method), 58
rfind() (bytes method), 58
rfind() (mmap.mmap method), 1012
rfind() (str method), 48
rgb_to_hls() (in module colorsys), 1333
rgb_to_hsv() (in module colorsys), 1333
rgb_to_yiq() (in module colorsys), 1333
rglob() (pathlib.Path method), 382
right (filecmp.dircmp attribute), 397
right() (in module turtle), 1362
right_list (filecmp.dircmp attribute), 398
right_only (filecmp.dircmp attribute), 398
RIGHTSHIFT (in module token), 1794
RIGHTSHIFTEQUAL (in module token), 1794
rindex() (bytearray method), 58
rindex() (bytes method), 58
rindex() (str method), 48
rjust() (bytearray method), 59
rjust() (bytes method), 59
rjust() (str method), 48
rlcompleter (module), 150
rlecode_hqx() (in module binascii), 1108
rledecode_hqx() (in module binascii), 1108
RLIM_INFINITY (in module resource), 1857
RLIMIT_AS (in module resource), 1858
RLIMIT_CORE (in module resource), 1857
RLIMIT_CPU (in module resource), 1858
RLIMIT_DATA (in module resource), 1858
RLIMIT_FSIZE (in module resource), 1858
RLIMIT_MEMLOCK (in module resource), 1858
RLIMIT_MSGQUEUE (in module resource), 1858
RLIMIT_NICE (in module resource), 1858
RLIMIT_NOFILE (in module resource), 1858
RLIMIT_NPROC (in module resource), 1858
RLIMIT_NPTS (in module resource), 1859
RLIMIT_OFILE (in module resource), 1858
RLIMIT_RSS (in module resource), 1858
RLIMIT_RTPRIO (in module resource), 1858
RLIMIT_RTTIME (in module resource), 1858
RLIMIT_SBSIZE (in module resource), 1859
RLIMIT_SIGPENDING (in module resource), 1859
RLIMIT_STACK (in module resource), 1858
RLIMIT_SWAP (in module resource), 1859
RLIMIT_VMEM (in module resource), 1858
RLock (class in multiprocessing), 780
RLock (class in threading), 756
RLock() (multiprocessing.managers.SyncManager
method), 786
rmdir() (ftplib.FTP method), 1233
rmdir() (in module os), 564
rmdir() (in module test.support), 1588
rmdir() (pathlib.Path method), 382
RMFF, 1332
rms() (in module audioop), 1323
rmtree() (in module shutil), 408
rmtree() (in module test.support), 1588
RobotFileParser (class in urllib.robotparser), 1219
robots.txt, 1218
rollback() (sqlite3.Connection method), 442
ROT_THREE (opcode), 1810
ROT_TWO (opcode), 1810
rotate() (collections.deque method), 217
rotate() (decimal.Context method), 310
rotate() (decimal.Decimal method), 304
rotate() (logging.handlers.BaseRotatingHandler
method), 674
RotatingFileHandler (class in logging.handlers), 675
rotation_filename() (logging.handlers.
BaseRotatingHandler method), 674
rotator (logging.handlers.BaseRotatingHandler attribute), 674
round() (built-in function), 21
ROUND_05UP (in module decimal), 311
ROUND_CEILING (in module decimal), 311
ROUND_DOWN (in module decimal), 311
ROUND_FLOOR (in module decimal), 311
ROUND_HALF_DOWN (in module decimal), 311
ROUND_HALF_EVEN (in module decimal), 311

ROUND_HALF_UP (in module decimal), 311
 ROUND_UP (in module decimal), 311
 Rounded (class in decimal), 312
 Row (class in sqlite3), 451
 row_factory (sqlite3.Connection attribute), 445
 rowcount (sqlite3.Cursor attribute), 450
 RPAR (in module token), 1794
 rpartition() (bytearray method), 58
 rpartition() (bytes method), 58
 rpartition() (str method), 48
 rpc_paths (xmlrpc.server.SimpleXMLRPCRequestHandler attribute), 1302
 rpop() (poplib.POP3 method), 1235
 rset() (poplib.POP3 method), 1235
 rshift() (in module operator), 361
 rsplit() (bytearray method), 59
 rsplit() (bytes method), 59
 rsplit() (str method), 48
 RSQB (in module token), 1794
 rstrip() (bytearray method), 60
 rstrip() (bytes method), 60
 rstrip() (str method), 48
 rt() (in module turtle), 1362
 RTLD_DEEPBIND (in module os), 587
 RTLD_GLOBAL (in module os), 587
 RTLD_LAZY (in module os), 587
 RTLD_LOCAL (in module os), 587
 RTLD_NODELETE (in module os), 587
 RTLD_NOLOAD (in module os), 587
 RTLD_NOW (in module os), 587
 ruler (cmd.Cmd attribute), 1394
 run (pdb command), 1613
 Run script, 1440
 run() (bdb.Bdb method), 1605
 run() (contextvars.Context method), 840
 run() (doctest.DocTestRunner method), 1488
 run() (in module asyncio), 847
 run() (in module pdb), 1609
 run() (in module profile), 1616
 run() (in module subprocess), 814
 run() (multiprocessing.Process method), 770
 run() (pdb.Pdb method), 1610
 run() (profile.Profile method), 1617
 run() (sched.scheduler method), 832
 run() (test.support.BasicTestRunner method), 1598
 run() (threading.Thread method), 754
 run() (trace.Trace method), 1629
 run() (unittest.TestCase method), 1503
 run() (unittest.TestSuite method), 1512
 run() (unittest.TextTestRunner method), 1517
 run() (wsgiref.handlers.BaseHandler method), 1189
 run_coroutine_threadsafe() (in module asyncio), 852
 run_docstring_examples() (in module doctest), 1481
 run_doctest() (in module test.support), 1589
 run_forever() (asyncio.loop method), 876
 run_in_executor() (asyncio.loop method), 887
 run_in_subinterp() (in module test.support), 1596
 run_module() (in module runpy), 1757
 run_path() (in module runpy), 1758
 run_python_until_end() (in module test.support.script_helper), 1599
 run_script() (modulefinder.ModuleFinder method), 1756
r
 Handler_unittest() (in module test.support), 1589
 run_until_complete() (asyncio.loop method), 876
 run_with_locale() (in module test.support), 1593
 run_with_tz() (in module test.support), 1593
 runcall() (bdb.Bdb method), 1605
 runcall() (in module pdb), 1609
 runcall() (pdb.Pdb method), 1610
 runcall() (profile.Profile method), 1617
 runcode() (code.InteractiveInterpreter method), 1748
 runctx() (bdb.Bdb method), 1605
 runctx() (in module profile), 1617
 runctx() (profile.Profile method), 1617
 runctx() (trace.Trace method), 1629
 runeval() (bdb.Bdb method), 1605
 runeval() (in module pdb), 1609
 runeval() (pdb.Pdb method), 1610
 runfunc() (trace.Trace method), 1629
 running() (concurrent.futures.Future method), 811
 runpy (module), 1757
 runsource() (code.InteractiveInterpreter method), 1748
R
 RuntimeError, 90
 RuntimeWarning, 94
 RUSAGE_BOTH (in module resource), 1860
 RUSAGE_CHILDREN (in module resource), 1860
 RUSAGE_SELF (in module resource), 1860
 RUSAGE_THREAD (in module resource), 1860
 RWF_DSYNC (in module os), 554
 RWF_HIPRI (in module os), 553
 RWF_NOWAIT (in module os), 553
 RWF_SYNC (in module os), 554
S
 S (in module re), 115
 -s S, --setup=S
 timeit command line option, 1625
 -s, --start-directory directory
 unittest-discover command line option, 1496
 -s, --summary
 trace command line option, 1628
 S_ENFMT (in module stat), 395
 S_IEXEC (in module stat), 395
 S_IFBLK (in module stat), 394
 S_IFCHR (in module stat), 394

S_IFDIR (in module stat), 394
S_IFDOOR (in module stat), 394
S_IFIFO (in module stat), 394
S_IFLNK (in module stat), 394
S_IFMT() (in module stat), 392
S_IFPORT (in module stat), 394
S_IFREG (in module stat), 394
S_IFSOCK (in module stat), 394
S_IFWHT (in module stat), 394
S_IMODE() (in module stat), 392
S_IREAD (in module stat), 395
S_IRGRP (in module stat), 395
S_IROTH (in module stat), 395
S_IRUSR (in module stat), 395
S_IRWXG (in module stat), 395
S_IRWXO (in module stat), 395
S_IRWXU (in module stat), 395
S_ISBLK() (in module stat), 392
S_ISCHR() (in module stat), 392
S_ISDIR() (in module stat), 392
S_ISDOOR() (in module stat), 392
S_ISFIFO() (in module stat), 392
S_ISGID (in module stat), 394
S_ISLNK() (in module stat), 392
S_ISPORT() (in module stat), 392
S_ISREG() (in module stat), 392
S_ISSOCK() (in module stat), 392
S_ISUID (in module stat), 394
S_ISVTX (in module stat), 395
S_ISWHT() (in module stat), 392
S_IWGRP (in module stat), 395
S_IWOTH (in module stat), 395
S_IWRITE (in module stat), 395
S_IWUSR (in module stat), 395
S_IXGRP (in module stat), 395
S_IXOTH (in module stat), 395
S_IXUSR (in module stat), 395
safe (uuid.SafeUUID attribute), 1263
safe_substitute() (string.Template method), 106
SafeChildWatcher (class in asyncio), 914
saferepr() (in module pprint), 255
SafeUUID (class in uuid), 1263
same_files (filecmp.dircmp attribute), 398
same_quantum() (decimal.Context method), 310
same_quantum() (decimal.Decimal method), 304
samefile() (in module os.path), 388
samefile() (pathlib.Path method), 382
SameFileError, 406
sameopenfile() (in module os.path), 388
samestat() (in module os.path), 388
sample() (in module random), 325
save() (http.cookiejar.FileCookieJar method), 1286
SAVEDCWD (in module test.support), 1587
SaveKey() (in module winreg), 1838
SaveSignals (class in test.support), 1598
savetty() (in module curses), 690
SAX2DOM (class in xml.dom.pulldom), 1150
SAXException, 1152
SAXNotRecognizedException, 1152
SAXNotSupportedException, 1152
SAXParseException, 1152
scaleb() (decimal.Context method), 310
scaleb() (decimal.Decimal method), 304
scandir() (in module os), 564
scanf(), 123
sched (module), 831
SCCHED_BATCH (in module os), 584
SCCHED_FIFO (in module os), 584
sched_get_priority_max() (in module os), 584
sched_get_priority_min() (in module os), 584
sched_getaffinity() (in module os), 585
sched_getparam() (in module os), 585
sched_getscheduler() (in module os), 585
SCCHED_IDLE (in module os), 584
SCCHED_OTHER (in module os), 584
sched_param (class in os), 584
sched_priority (os.sched_param attribute), 584
SCCHED_RESET_ON_FORK (in module os), 584
SCCHED_RR (in module os), 584
sched_rr_get_interval() (in module os), 585
sched_setaffinity() (in module os), 585
sched_setparam() (in module os), 585
sched_setscheduler() (in module os), 585
SCCHED_SPORADIC (in module os), 584
sched_yield() (in module os), 585
scheduler (class in sched), 831
schema (in module msilib), 1832
Screen (class in turtle), 1386
screensize() (in module turtle), 1380
script_from_examples() (in module doctest), 1489
scroll() (curses.window method), 697
ScrolledCanvas (class in turtle), 1386
scrolllok() (curses.window method), 697
scrypt() (in module hashlib), 528
seal() (in module unittest.mock), 1558
search
 path, module, 405, 1670, 1742
search() (imaplib.IMAP4 method), 1240
search() (in module re), 115
search() (re.Pattern method), 118
second (datetime.datetime attribute), 185
second (datetime.time attribute), 192
seconds since the epoch, 600
secrets (module), 537
SECTCRE (configparser.ConfigParser attribute),
 510
sections() (configparser.ConfigParser method), 513
secure (http.cookiejar.Cookie attribute), 1291

secure hash algorithm, SHA1, SHA224, SHA256, SHA384, SHA512, 525
 Secure Sockets Layer, 950
 security
 CGI, 1180
 see() (tkinter.ttk.Treeview method), 1428
 seed() (in module random), 324
 seek() (chunk.Chunk method), 1332
 seek() (io.IOBase method), 591
 seek() (io.TextIOBase method), 597
 seek() (mmap.mmap method), 1012
 SEEK_CUR (in module os), 550
 SEEK_END (in module os), 550
 SEEK_SET (in module os), 550
 seekable() (io.IOBase method), 592
 seen_greeting (smtplib.SMTPChannel attribute), 1259
 Select (class in tkinter.tix), 1435
 select (module), 985
 select() (imaplib.IMAP4 method), 1240
 select() (in module select), 986
 select() (selectors.BaseSelector method), 994
 select() (tkinter.ttk.Notebook method), 1422
 selected_alpn_protocol() (ssl.SSLSocket method), 966
 selected_npn_protocol() (ssl.SSLSocket method), 966
 selection() (tkinter.ttk.Treeview method), 1429
 selection_add() (tkinter.ttk.Treeview method), 1429
 selection_remove() (tkinter.ttk.Treeview method), 1429
 selection_set() (tkinter.ttk.Treeview method), 1429
 selection_toggle() (tkinter.ttk.Treeview method), 1429
 selector (urllib.request.Request attribute), 1198
 SelectorEventLoop (class in asyncio), 892
 SelectorKey (class in selectors), 993
 selectors (module), 992
 SelectSelector (class in selectors), 994
 Semaphore (class in asyncio), 866
 Semaphore (class in multiprocessing), 780
 Semaphore (class in threading), 759
 Semaphore() (multiprocessing.managers.SyncManager method), 786
 semaphores, binary, 836
 SEMI (in module token), 1794
 send() (asyncore.dispatcher method), 998
 send() (http.client.HTTPConnection method), 1226
 send() (imaplib.IMAP4 method), 1241
 send() (logging.handlers DatagramHandler method), 678
 send() (logging.handlers.SocketHandler method), 677
 send() (multiprocessing.connection.Connection method), 777
 send() (socket.socket method), 943
 send_bytes() (multiprocessing.connection.Connection method), 777
 send_error() (http.server.BaseHTTPRequestHandler method), 1277
 send_flow_data() (formatter.writer method), 1824
 send_header() (http.server.BaseHTTPRequestHandler method), 1277
 send_hor_rule() (formatter.writer method), 1824
 send_label_data() (formatter.writer method), 1824
 send_line_break() (formatter.writer method), 1824
 send_literal_data() (formatter.writer method), 1824
 send_message() (smtplib.SMTP method), 1255
 send_paragraph() (formatter.writer method), 1824
 send_response() (http.server.BaseHTTPRequestHandler method), 1277
 send_response_only() (http.server.BaseHTTPRequestHandler method), 1277
 send_signal() (asyncio.asyncio.subprocess.Process method), 869
 send_signal() (asyncio.SubprocessTransport method), 903
 send_signal() (subprocess.Popen method), 822
 sendall() (socket.socket method), 943
 sendcmd() (ftplib.FTP method), 1231
 sendfile() (asyncio.loop method), 883
 sendfile() (in module os), 554
 sendfile() (socket.socket method), 944
 sendfile() (wsgiref.handlers.BaseHandler method), 1191
 SendfileNotFoundError, 874
 sendmail() (smtplib.SMTP method), 1254
 sendmsg() (socket.socket method), 943
 sendmsg_afalg() (socket.socket method), 944
 sendto() (asyncio.DatagramTransport method), 902
 sendto() (socket.socket method), 943
 sentinel (in module unittest.mock), 1550
 sentinel (multiprocessing.Process attribute), 771
 sep (in module os), 586
 sequence, 1909
 iteration, 36
 object, 37
 types, immutable, 39
 types, mutable, 39
 types, operations on, 37, 39
 Sequence (class in collections.abc), 229
 Sequence (class in typing), 1460
 sequence (in module msilib), 1832
 sequence2st() (in module parser), 1782
 SequenceMatcher (class in difflib), 128, 132
 serializing

objects, 415
serve_forever() (asyncio.Server method), 891
serve_forever() (socketserver.BaseServer method), 1268
server
 WWW, 1175, 1274
Server (class in asyncio), 890
server (http.server.BaseHTTPRequestHandler attribute), 1275
server_activate() (socketserver.BaseServer method), 1270
server_address (socketserver.BaseServer attribute), 1269
server_bind() (socketserver.BaseServer method), 1270
server_close() (socketserver.BaseServer method), 1269
server_hostname (ssl.SSLSocket attribute), 967
server_side (ssl.SSLSocket attribute), 967
server_software (wsgiref.handlers.BaseHandler attribute), 1190
server_version (http.server.BaseHTTPRequestHandler attribute), 1276
server_version (http.server.SimpleHTTPRequestHandler attribute), 1278
ServerProxy (class in xmlrpc.client), 1293
service_actions() (socketserver.BaseServer method), 1268
session (ssl.SSLSocket attribute), 967
session_reused (ssl.SSLSocket attribute), 967
session_stats() (ssl.SSLContext method), 973
set
 object, 74
set (built-in class), 75
Set (class in collections.abc), 229
Set (class in typing), 1460
Set Breakpoint, 1442
set() (asyncio.Event method), 864
set() (configparser.ConfigParser method), 515
set() (configparser.RawConfigParser method), 517
set() (contextvars.ContextVar method), 839
set() (http.cookies.Morsel method), 1282
set() (osaudiodev.oss_mixer_device method), 1339
set() (test.support.EnvironmentVarGuard method), 1597
set() (threading.Event method), 760
set() (tkinter.ttk.Combobox method), 1419
set() (tkinter.ttk.Spinbox method), 1420
set() (tkinter.ttk.Treeview method), 1429
set() (xml.etree.ElementTree.Element method), 1128
SET_ADD (opcode), 1813
set_allowed_domains()
 (http.cookiejar.DefaultCookiePolicy method), 1289
set_alpn_protocols() (ssl.SSLContext method), 970
set_app() (wsgiref.simple_server.WSGIServer method), 1187
set_asyncodegen_hooks() (in module sys), 1673
set_authorizer() (sqlite3.Connection method), 444
set_auto_history() (in module readline), 147
set_blocked_domains()
 (http.cookiejar.DefaultCookiePolicy method), 1289
set_blocking() (in module os), 554
set_boundary() (email.message.EmailMessage method), 1019
set_boundary() (email.message.Message method), 1059
set_break() (bdb.Bdb method), 1604
set_charset() (email.message.Message method), 1055
set_child_watcher() (asyncio.AbstractEventLoopPolicy method), 913
set_child_watcher() (in module asyncio), 913
set_children() (tkinter.ttk.Treeview method), 1426
set_ciphers() (ssl.SSLContext method), 970
set_completer() (in module readline), 148
set_completer_delims() (in module readline), 148
set_completion_display_matches_hook() (in module readline), 148
set_content() (email.contentmanager.ContentManager method), 1043
set_content() (email.message.EmailMessage method), 1021
set_content() (in module email.contentmanager), 1044
set_continue() (bdb.Bdb method), 1604
set_cookie() (http.cookiejar.CookieJar method), 1286
set_cookie_if_ok() (http.cookiejar.CookieJar method), 1286
set_coroutine_origin_tracking_depth() (in module sys), 1673
set_coroutine_wrapper() (in module sys), 1674
set_current() (msilib.Feature method), 1831
set_data() (importlib.abc.SourceLoader method), 1767
set_data() (importlib.machinery.SourceFileLoader method), 1772
set_date() (mailbox.MaildirMessage method), 1092
set_debug() (asyncio.loop method), 889
set_debug() (in module gc), 1723
set_debuglevel() (ftplib.FTP method), 1230
set_debuglevel() (http.client.HTTPConnection method), 1225
set_debuglevel() (nntplib.NNTP method), 1249
set_debuglevel() (poplib.POP3 method), 1235
set_debuglevel() (smtplib.SMTP method), 1252

set_debuglevel() (`telnetlib.Telnet` method), 1261
 set_default_executor() (`asyncio.loop` method), 887
 set_default_type() (`email.message.EmailMessage` method), 1018
 set_default_type() (`email.message.Message` method), 1057
 set_default_verify_paths() (`ssl.SSLContext` method), 970
 set_defaults() (`argparse.ArgumentParser` method), 639
 set_defaults() (`optparse.OptionParser` method), 1883
 set_ecdh_curve() (`ssl.SSLContext` method), 971
 set_errno() (in module `ctypes`), 744
 set_event_loop() (`asyncio.AbstractEventLoopPolicy` method), 913
 set_event_loop() (in module `asyncio`), 875
 set_event_loop_policy() (in module `asyncio`), 912
 set_exception() (`asyncio.Future` method), 896
 set_exception() (`concurrent.futures.Future` method), 812
 set_exception_handler() (`asyncio.loop` method), 888
 set_executable() (in module `multiprocessing`), 776
 set_flags() (`mailbox.MaildirMessage` method), 1092
 set_flags() (`mailbox.mboxMessage` method), 1094
 set_flags() (`mailbox.MMDFMessage` method), 1098
 set_from() (`mailbox.mboxMessage` method), 1093
 set_from() (`mailbox.MMDFMessage` method), 1097
 set_handle_inheritable() (in module `os`), 557
 set_history_length() (in module `readline`), 147
 set_info() (`mailbox.MaildirMessage` method), 1092
 set_inheritable() (in module `os`), 556
 set_inheritable() (`socket.socket` method), 944
 set_labels() (`mailbox.BabylMessage` method), 1096
 set_last_error() (in module `ctypes`), 744
 set_literal (2to3 fixer), 1583
 set_loader() (in module `importlib.util`), 1776
 set_match_tests() (in module `test.support`), 1589
 set_memlimit() (in module `test.support`), 1591
 set_next() (`bdb.Bdb` method), 1603
 set_nonstandard_attr() (`http.cookiejar.Cookie` method), 1291
 set_npn_protocols() (`ssl.SSLContext` method), 970
 set_ok() (`http.cookiejar.CookiePolicy` method), 1287
 set_option_negotiation_callback() (`telnetlib.Telnet` method), 1262
 set_output_charset() (`gettext.NullTranslations` method), 1344
 set_package() (in module `importlib.util`), 1776
 set_param() (`email.message.EmailMessage` method), 1018
 set_param() (`email.message.Message` method), 1058
 set_pasv() (`ftplib.FTP` method), 1231
 set_payload() (`email.message.Message` method), 1055
 set_policy() (`http.cookiejar.CookieJar` method), 1286
 set_position() (`xdrlib.Unpacker` method), 520
 set_pre_input_hook() (in module `readline`), 148
 set_progress_handler() (`sqlite3.Connection` method), 444
 set_protocol() (`asyncio.BaseTransport` method), 900
 set_proxy() (`urllib.request.Request` method), 1199
 set_quit() (`bdb.Bdb` method), 1604
 set_recsrc() (`osaudiodev.oss_mixer_device` method), 1339
 set_result() (`asyncio.Future` method), 896
 set_result() (`concurrent.futures.Future` method), 812
 set_return() (`bdb.Bdb` method), 1603
 set_running_or_notify_cancel() (concurrent.futures.Future method), 812
 set_seq1() (`difflib.SequenceMatcher` method), 133
 set_seq2() (`difflib.SequenceMatcher` method), 133
 set_seqs() (`difflib.SequenceMatcher` method), 133
 set_sequences() (`mailbox.MH` method), 1089
 set_sequences() (`mailbox.MHMessage` method), 1095
 set_server_documentation() (xmlrpc.server.DocCGIXMLRPCRequestHandler method), 1306
 set_server_documentation() (xmlrpc.server.DocXMLRPCServer method), 1306
 set_server_name() (xmlrpc.server.DocCGIXMLRPCRequestHandler method), 1306
 set_server_name() (xmlrpc.server.DocXMLRPCServer method), 1306
 set_server_title() (xmlrpc.server.DocCGIXMLRPCRequestHandler method), 1306
 set_server_title() (xmlrpc.server.DocXMLRPCServer method), 1306
 set_servername_callback (`ssl.SSLContext` attribute), 971
 set_spacing() (`formatter.formatter` method), 1823
 set_start_method() (in module `multiprocessing`), 777
 set_startup_hook() (in module `readline`), 147
 set_step() (`bdb.Bdb` method), 1603
 set_subdir() (`mailbox.MaildirMessage` method), 1092
 set_task_factory() (`asyncio.loop` method), 879
 set_terminator() (`asynchat.async_chat` method), 1001

set_threshold() (in module gc), 1724
set_trace() (bdb.Bdb method), 1604
set_trace() (in module bdb), 1605
set_trace() (in module pdb), 1609
set_trace() (pdb.Pdb method), 1610
set_trace_callback() (sqlite3.Connection method), 444
set_tunnel() (http.client.HTTPConnection method), 1225
set_type() (email.message.Message method), 1058
set_unittest_reportflags() (in module doctest), 1483
set_unixfrom() (email.message.EmailMessage method), 1016
set_unixfrom() (email.message.Message method), 1054
set_until() (bdb.Bdb method), 1604
set_url() (urllib.robotparser.RobotFileParser method), 1219
set_usage() (optparse.OptionParser method), 1883
set_userptr() (curses.panel.Panel method), 707
set_visible() (mailbox.BabylMessage method), 1096
set_wakeup_fd() (in module signal), 1006
set_write_buffer_limits() (asyncio.WriteTransport method), 901
setacl() (imaplib.IMAP4 method), 1241
setannotation() (imaplib.IMAP4 method), 1241
setattr() (built-in function), 21
setAttribute() (xml.dom.Element method), 1140
setAttributeNode() (xml.dom.Element method), 1140
setAttributeNodeNS() (xml.dom.Element method), 1140
setAttributeNS() (xml.dom.Element method), 1140
SetBase() (xml.parsers.expat.xmlparser method), 1164
setblocking() (socket.socket method), 944
setByteStream() (xml.sax.xmlreader.InputSource method), 1161
setcbreak() (in module tty), 1852
setCharacterStream() (xml.sax.xmlreader.InputSource method), 1162
setcheckinterval() (in module sys), 1671
setcomptype() (aifc.aifc method), 1326
setcomptype() (sunau.AU_write method), 1329
setcomptype() (wave.Wave_write method), 1331
setContentHandler() (xml.sax.xmlreader.XMLReader method), 1160
setcontext() (in module decimal), 305
setDaemon() (threading.Thread method), 754
setdefault() (dict method), 79
setdefault() (http.cookies.Morsel method), 1282
setdefaulttimeout() (in module socket), 938
setdlopenflags() (in module sys), 1671
setDocumentLocator() (xml.sax.handler.ContentHandler method), 1155
setDTDHandler() (xml.sax.xmlreader.XMLReader method), 1160
setegid() (in module os), 545
setEncoding() (xml.sax.xmlreader.InputSource method), 1161
setEntityResolver() (xml.sax.xmlreader.XMLReader method), 1160
setErrorHandler() (xml.sax.xmlreader.XMLReader method), 1160
seteuid() (in module os), 546
setFeature() (xml.sax.xmlreader.XMLReader method), 1160
setfirstweekday() (in module calendar), 209
setfmt() (osaudiodev.oss_audio_device method), 1337
setFormatter() (logging.Handler method), 650
setframerate() (aifc.aifc method), 1326
setframerate() (sunau.AU_write method), 1329
setframerate() (wave.Wave_write method), 1331
setgid() (in module os), 546
setgroups() (in module os), 546
seth() (in module turtle), 1363
setheading() (in module turtle), 1363
sethostname() (in module socket), 938
SetInteger() (msilib.Record method), 1830
setItem() (in module operator), 362
setitimer() (in module signal), 1005
setLevel() (logging.Handler method), 650
setLevel() (logging.Logger method), 646
setlocale() (in module locale), 1349
setLocale() (xml.sax.xmlreader.XMLReader method), 1160
setLoggerClass() (in module logging), 660
setlogmask() (in module syslog), 1862
setLogRecordFactory() (in module logging), 660
setmark() (aifc.aifc method), 1326
setMaxConns() (urllib.request.CacheFTPHandler method), 1204
setmode() (in module msvcr), 1833
setName() (threading.Thread method), 754
setnchannels() (aifc.aifc method), 1326
setnchannels() (sunau.AU_write method), 1328
setnchannels() (wave.Wave_write method), 1331
setnframes() (aifc.aifc method), 1326
setnframes() (sunau.AU_write method), 1329
setnframes() (wave.Wave_write method), 1331
SetParamEntityParsing()
 (xml.parsers.expat.xmlparser method), 1164
setparameters() (osaudiodev.oss_audio_device method), 1338
setparams() (aifc.aifc method), 1326

setparams() (`sunau.AU_write` method), 1329
setparams() (`wave.Wave_write` method), 1331
setpassword() (`zipfile.ZipFile` method), 477
setpgid() (in module `os`), 546
setpgrp() (in module `os`), 546
setpos() (`aifc.aifc` method), 1325
setpos() (in module `turtle`), 1363
setpos() (`sunau.AU_read` method), 1328
setpos() (`wave.Wave_read` method), 1330
setposition() (in module `turtle`), 1363
setpriority() (in module `os`), 546
setprofile() (in module `sys`), 1671
setprofile() (in module `threading`), 752
SetProperty() (`msilib.SummaryInformation` method), 1829
setProperty() (`xml.sax.xmlreader.XMLReader` method), 1160
setPublicId() (`xml.sax.xmlreader.InputSource` method), 1161
setquota() (`imaplib.IMAP4` method), 1241
setraw() (in module `tty`), 1852
setrecursionlimit() (in module `sys`), 1672
setregid() (in module `os`), 546
setresgid() (in module `os`), 546
setresuid() (in module `os`), 546
setreuid() (in module `os`), 547
setrlimit() (in module `resource`), 1857
setsampwidth() (`aifc.aifc` method), 1326
setsampwidth() (`sunau.AU_write` method), 1328
setsampwidth() (`wave.Wave_write` method), 1331
setscreg() (`curses.window` method), 697
setsid() (in module `os`), 547
setsockopt() (`socket.socket` method), 945
setstate() (`codecs.IncrementalDecoder` method), 163
setstate() (`codecs.IncrementalEncoder` method), 162
setstate() (in module `random`), 324
setStream() (`logging.StreamHandler` method), 672
SetStream() (`msilib.Record` method), 1829
SetString() (`msilib.Record` method), 1829
setswitchinterval() (in module `sys`), 1672
setswitchinterval() (in module `test.support`), 1589
setSystemId() (`xml.sax.xmlreader.InputSource` method), 1161
setsyx() (in module `curses`), 690
setTarget() (`logging.handlers.MemoryHandler` method), 682
settiltangle() (in module `turtle`), 1375
settimeout() (`socket.socket` method), 944
setTimeout() (`urllib.request.CacheFTPHandler` method), 1204
settrace() (in module `sys`), 1672
settrace() (in module `threading`), 752
setuid() (in module `os`), 547
setundobuffer() (in module `turtle`), 1378
setup() (in module `turtle`), 1385
setup() (`socketserver.BaseRequestHandler` method), 1270
setUp() (`unittest.TestCase` method), 1502
SETUP_ANNOTATIONS (opcode), 1813
SETUP_ASYNC_WITH (opcode), 1812
setup_environ() (`wsgiref.handlers.BaseHandler` method), 1190
SETUP_EXCEPT (opcode), 1816
SETUP_FINALLY (opcode), 1816
SETUP_LOOP (opcode), 1816
setup_python() (`venv.EnvBuilder` method), 1647
setup_scripts() (`venv.EnvBuilder` method), 1647
setup_testing_defaults() (in module `wsgiref.util`), 1184
SETUP_WITH (opcode), 1813
setUpClass() (`unittest.TestCase` method), 1502
setupterm() (in module `curses`), 690
SetValue() (in module `winreg`), 1838
SetValueEx() (in module `winreg`), 1838
setworldcoordinates() (in module `turtle`), 1380
setx() (in module `turtle`), 1363
setxattr() (in module `os`), 575
sety() (in module `turtle`), 1363
SF_APPEND (in module `stat`), 396
SF_ARCHIVED (in module `stat`), 396
SF_IMMUTABLE (in module `stat`), 396
SF_MNOWAIT (in module `os`), 555
SF_NODISKIO (in module `os`), 555
SF_NOUNLINK (in module `stat`), 396
SF_SNAPSHOT (in module `stat`), 396
SF_SYNC (in module `os`), 555
Shape (class in `turtle`), 1386
shape (`memoryview` attribute), 74
shape() (in module `turtle`), 1373
shapesize() (in module `turtle`), 1374
shapetransform() (in module `turtle`), 1375
share() (`socket.socket` method), 945
shared_ciphers() (`ssl.SSLSocket` method), 965
shearfactor() (in module `turtle`), 1374
Shelf (class in `shelve`), 430
shelve
 module, 432
shelve (module), 429
shift() (`decimal.Context` method), 310
shift() (`decimal.Decimal` method), 304
shift_path_info() (in module `wsgiref.util`), 1184
shifting
 operations, 32
shlex (class in `shlex`), 1398
shlex (module), 1397
shortDescription() (`unittest.TestCase` method), 1510
shorten() (in module `textwrap`), 139

shouldFlush() (logging.handlers.BufferingHandler method), 682
shouldFlush() (logging.handlers.MemoryHandler method), 682
shouldStop (unittest.TestResult attribute), 1515
show() (curses.panel.Panel method), 707
show_code() (in module dis), 1808
showsyntaxerror() (code.InteractiveInterpreter method), 1748
showtraceback() (code.InteractiveInterpreter method), 1748
showturtle() (in module turtle), 1373
showwarning() (in module warnings), 1686
shuffle() (in module random), 325
shutdown() (concurrent.futures.Executor method), 808
shutdown() (imaplib.IMAP4 method), 1241
shutdown() (in module logging), 660
shutdown() (multiprocessing.managers.BaseManager method), 785
shutdown() (socketserver.BaseServer method), 1269
shutdown() (socket.socket method), 945
shutdown_asyncgens() (asyncio.loop method), 877
shutil (module), 406
side_effect (unittest.mock.Mock attribute), 1529
SIG_BLOCK (in module signal), 1004
SIG_DFL (in module signal), 1003
SIG_IGN (in module signal), 1003
SIG_SETMASK (in module signal), 1004
SIG_UNBLOCK (in module signal), 1004
siginterrupt() (in module signal), 1006
signal
 module, 837
signal (module), 1002
signal() (in module signal), 1006
Signature (class in inspect), 1732
signature (inspect.BoundArguments attribute), 1735
signature() (in module inspect), 1731
sigpending() (in module signal), 1007
sigtimedwait() (in module signal), 1007
sigwait() (in module signal), 1007
sigwaitinfo() (in module signal), 1007
Simple Mail Transfer Protocol, 1250
SimpleCookie (class in http.cookies), 1281
simplefilter() (in module warnings), 1687
SimpleHandler (class in wsgiref.handlers), 1189
SimpleHTTPRequestHandler (class in http.server), 1278
SimpleNamespace (class in types), 251
SimpleQueue (class in multiprocessing), 775
SimpleQueue (class in queue), 833
SimpleXMLRPCRequestHandler (class in xmlrpc.server), 1301
SimpleXMLRPCServer (class in xmlrpclib), 1300
sin() (in module cmath), 291
sin() (in module math), 288
single dispatch, 1910
SingleAddressHeader (class in email.headerregistry), 1040
singledispatch() (in module functools), 356
sinh() (in module cmath), 291
sinh() (in module math), 288
SIO_KEEPALIVE_VALS (in module socket), 932
SIO_LOOPBACK_FAST_PATH (in module socket), 932
SIO_RCVALL (in module socket), 932
site (module), 1742
site command line option
 -user-base, 1744
 -user-site, 1745
sitecustomize
 module, 1743
site-packages
 directory, 1742
sixtofour (ipaddress.IPv6Address attribute), 1310
size (struct.Struct attribute), 156
size (tarfile.TarInfo attribute), 487
size (tracemalloc.Statistic attribute), 1638
size (tracemalloc.StatisticDiff attribute), 1638
size (tracemalloc.Trace attribute), 1638
size() (ftplib.FTP method), 1233
size() (mmap.mmap method), 1012
size_diff (tracemalloc.StatisticDiff attribute), 1638
Sized (class in collections.abc), 228
Sized (class in typing), 1459
sizeof() (in module ctypes), 744
SKIP (in module doctest), 1477
skip() (chunk.Chunk method), 1333
skip() (in module unittest), 1500
skip_unless_bind_unix_socket() (in module test.support), 1593
skip_unless_symlink() (in module test.support), 1593
skip_unless_xattr() (in module test.support), 1593
skipIf() (in module unittest), 1500
skipinitialspace (csv.Dialect attribute), 497
skipped (unittest.TestResult attribute), 1515
skippedEntity() (xml.sax.handler.ContentHandler method), 1156
SkipTest, 1500
skipTest() (unittest.TestCase method), 1503
skipUnless() (in module unittest), 1500
SLASH (in module token), 1794
SLASHEQUAL (in module token), 1794
slave() (nntplib.NNTP method), 1249
sleep() (in module asyncio), 848
sleep() (in module time), 604
slice, 1910

assignment, 39
 built-in function, 1818
 operation, 37
 slice (built-in class), 22
SMTP
 protocol, 1250
SMTP (class in `smtplib`), 1250
SMTP (in module `email.policy`), 1035
`smtp_server` (`smtplib.SMTPChannel` attribute), 1258
SMTP_SSL (class in `smtplib`), 1250
`smtp_state` (`smtplib.SMTPChannel` attribute), 1259
SMTPAuthenticationError, 1252
SMTPChannel (class in `smtplib`), 1258
SMTPConnectError, 1251
`smtplib` (module), 1256
SMTPDataError, 1251
SMTPException, 1251
SMTPHandler (class in `logging.handlers`), 681
SMTPHeloError, 1251
`smtplib` (module), 1250
SMTPNotSupportedError, 1251
SMTPRecipientsRefused, 1251
SMTPResponseException, 1251
SMTPSenderRefused, 1251
SMTPServer (class in `smtplib`), 1257
SMTPServerDisconnected, 1251
SMTPUTF8 (in module `email.policy`), 1035
Snapshot (class in `tracemalloc`), 1637
SND_ALIAS (in module `winsound`), 1842
SND_ASYNC (in module `winsound`), 1843
SND_FILENAME (in module `winsound`), 1842
SND_LOOP (in module `winsound`), 1843
SND_MEMORY (in module `winsound`), 1843
SND_NODEFAULT (in module `winsound`), 1843
SND_NOSTOP (in module `winsound`), 1843
SND_NOWAIT (in module `winsound`), 1843
SND_PURGE (in module `winsound`), 1843
`sndhdr` (module), 1334
sni_callback (`ssl.SSLContext` attribute), 971
sniff() (`csv.Sniffer` method), 496
Sniffer (class in `csv`), 496
sock_accept() (`asyncio.loop` method), 885
SOCK_CLOEXEC (in module `socket`), 930
sock_connect() (`asyncio.loop` method), 884
SOCK_DGRAM (in module `socket`), 930
SOCK_MAX_SIZE (in module `test.support`), 1588
SOCK_NONBLOCK (in module `socket`), 930
SOCK_RAW (in module `socket`), 930
SOCK_RDM (in module `socket`), 930
sock_recv() (`asyncio.loop` method), 884
sock_recv_into() (`asyncio.loop` method), 884
sock_sendall() (`asyncio.loop` method), 884
sock_sendfile() (`asyncio.loop` method), 885
SOCK_SEQPACKET (in module `socket`), 930
SOCK_STREAM (in module `socket`), 930
socket
 module, 1173
 object, 927
socket (module), 927
socket (`socketserver.BaseServer` attribute), 1269
socket() (`imaplib.IMAP4` method), 1241
socket() (in module `socket`), 933, 987
socket_type (`socketserver.BaseServer` attribute), 1269
SocketHandler (class in `logging.handlers`), 677
socketpair() (in module `socket`), 933
sockets (`asyncio.Server` attribute), 892
socketserver (module), 1266
SocketType (in module `socket`), 934
SOL_ALG (in module `socket`), 932
SOL_RDS (in module `socket`), 932
SOMAXCONN (in module `socket`), 931
sort() (`imaplib.IMAP4` method), 1241
sort() (list method), 41
sort_stats() (`pstats.Stats` method), 1618
sortdict() (in module `test.support`), 1589
sorted() (built-in function), 22
-sort-keys
`json.tool` command line option, 1081
sortTestMethodsUsing (in `unittest.TestLoader` attribute), 1514
source (`doctest.Example` attribute), 1485
source (`pdb` command), 1613
source (`shlex.shlex` attribute), 1400
SOURCE_DATE_EPOCH, 1802, 1804
source_from_cache() (in module `imp`), 1892
source_from_cache() (in module `importlib.util`), 1775
source_hash() (in module `importlib.util`), 1776
SOURCE_SUFFIXES (in module `importlib.machinery`), 1770
source_to_code() (in `importlib.abc.InspectLoader` static method), 1766
SourceFileLoader (class in `importlib.machinery`), 1772
sourcehook() (`shlex.shlex` method), 1399
SourcelessFileLoader (class in `importlib.machinery`), 1772
SourceLoader (class in `importlib.abc`), 1767
space
 in printf-style formatting, 52, 66
 in string formatting, 101
span() (`re.Match` method), 122
spawn() (in module `pty`), 1852
spawn_python() (in `test.support.script_helper`), 1599
spawnl() (in module `os`), 579
spawnle() (in module `os`), 579

spawnlp() (in module os), 579
spawnlpe() (in module os), 579
spawnnv() (in module os), 579
spawnve() (in module os), 579
spawnvp() (in module os), 579
spawnvpe() (in module os), 579
spec_from_file_location() (in module importlib.util), 1776
spec_from_loader() (in module importlib.util), 1776
special method, 1910
specified_attributes (xml.parsers.expat.xmlparser attribute), 1165
speed() (in module turtle), 1366
speed() (ossaudiodev.oss_audio_device method), 1337
Spinbox (class in tkinter.ttk), 1420
split() (bytearray method), 60
split() (bytes method), 60
split() (in module os.path), 388
split() (in module re), 115
split() (in module shlex), 1397
split() (re.Pattern method), 119
split() (str method), 48
splitdrive() (in module os.path), 389
splitext() (in module os.path), 389
splitlines() (bytearray method), 63
splitlines() (bytes method), 63
splitlines() (str method), 49
SplitResult (class in urllib.parse), 1215
SplitResultBytes (class in urllib.parse), 1216
SpoooledTemporaryFile() (in module tempfile), 399
sprintf-style formatting, 51, 66
spwd (module), 1847
sqlite3 (module), 437
sqlite_version (in module sqlite3), 439
sqlite_version_info (in module sqlite3), 439
sqrt() (decimal.Context method), 310
sqrt() (decimal.Decimal method), 304
sqrt() (in module cmath), 291
sqrt() (in module math), 287
SSL, 950
ssl (module), 950
SSL_CERT_FILE, 985
SSL_CERT_PATH, 985
ssl_version (ftplib.FTP_TLS attribute), 1233
SSLCertVerificationError, 953
SSLContext (class in ssl), 967
SSLEOFError, 953
SSLError, 952
SSLErrorNumber (class in ssl), 962
SSLObject (class in ssl), 981
sslobjetc_class (ssl.SSLContext attribute), 973
SSLSession (class in ssl), 982
SSLocket (class in ssl), 963
sslsocket_class (ssl.SSLContext attribute), 972
SSLSyscallError, 953
SSLv3 (ssl.TLSVersion attribute), 963
SSLWantReadError, 953
SSLWantWriteError, 953
SSLZeroReturnError, 952
st() (in module turtle), 1373
st2list() (in module parser), 1783
st2tuple() (in module parser), 1783
ST_ATIME (in module stat), 393
st_atime (os.stat_result attribute), 568
st_atime_ns (os.stat_result attribute), 568
st_birthtime (os.stat_result attribute), 569
st_blksize (os.stat_result attribute), 568
st_blocks (os.stat_result attribute), 568
st_creator (os.stat_result attribute), 569
ST_CTIME (in module stat), 393
st_ctime (os.stat_result attribute), 568
st_ctime_ns (os.stat_result attribute), 568
ST_DEV (in module stat), 393
st_dev (os.stat_result attribute), 568
st_file_attributes (os.stat_result attribute), 569
st_flags (os.stat_result attribute), 569
st_fstype (os.stat_result attribute), 569
st_gen (os.stat_result attribute), 569
ST_GID (in module stat), 393
st_gid (os.stat_result attribute), 568
ST_INO (in module stat), 393
st_ino (os.stat_result attribute), 567
ST_MODE (in module stat), 393
st_mode (os.stat_result attribute), 567
ST_MTIME (in module stat), 393
st_mtime (os.stat_result attribute), 568
st_mtime_ns (os.stat_result attribute), 568
ST_NLINK (in module stat), 393
st_nlink (os.stat_result attribute), 568
st_rdev (os.stat_result attribute), 569
st_rsize (os.stat_result attribute), 569
ST_SIZE (in module stat), 393
st_size (os.stat_result attribute), 568
st_type (os.stat_result attribute), 569
ST_UID (in module stat), 393
st_uid (os.stat_result attribute), 568
stack (traceback.TracebackException attribute), 1717
stack viewer, 1441
stack() (in module inspect), 1739
stack_effect() (in module dis), 1809
stack_size() (in module _thread), 836
stack_size() (in module threading), 752
stackable streams, 156
StackSummary (class in traceback), 1718
stamp() (in module turtle), 1365

standard_b64decode() (in module base64), 1104
 standard_b64encode() (in module base64), 1104
 standarderror (2to3 fixer), 1583
 standend() (curses.window method), 697
 standout() (curses.window method), 697
 STAR (in module token), 1794
 STAREQUAL (in module token), 1794
 starmap() (in module itertools), 346
 starmap() (multiprocessing.pool.Pool method), 792
 starmap_async() (multiprocessing.pool.Pool method), 792
 start (range attribute), 42
 start (UnicodeError attribute), 92
 start() (in module tracemalloc), 1635
 start() (logging.handlers.QueueListener method), 684
 start() (multiprocessing.managers.BaseManager method), 784
 start() (multiprocessing.Process method), 770
 start() (re.Match method), 121
 start() (threading.Thread method), 753
 start() (tkinter.ttk.Progressbar method), 1423
 start() (xml.etree.ElementTree.TreeBuilder method), 1131
 start_color() (in module curses), 690
 start_component() (msilib.Directory method), 1830
 start_new_thread() (in module _thread), 836
 start_server() (in module asyncio), 857
 start_serving() (asyncio.Server method), 891
 start_threads() (in module test.support), 1592
 start_tls() (asyncio.loop method), 883
 start_unix_server() (in module asyncio), 858
 StartCdataSectionHandler()
 (xml.parsers.expat.xmlparser method), 1167
 StartDoctypeDeclHandler()
 (xml.parsers.expat.xmlparser method), 1166
 startDocument() (xml.sax.handler.ContentHandler method), 1155
 startElement() (xml.sax.handler.ContentHandler method), 1155
 StartElementHandler() (xml.parsers.expat.xmlparser method), 1166
 startElementNS() (xml.sax.handler.ContentHandler method), 1156
 STARTF_USESHOWWINDOW (in module subprocess), 824
 STARTF_USESTDHANDLES (in module subprocess), 824
 startfile() (in module os), 581
 StartNamespaceDeclHandler()
 (xml.parsers.expat.xmlparser method), 1167
 startPrefixMapping() (xml.sax.handler.ContentHandler method), 1155
 startswith() (bytearray method), 58
 startswith() (bytes method), 58
 startswith() (str method), 50
 startTest() (unittest.TestResult method), 1516
 startTestRun() (unittest.TestResult method), 1516
 starttls() (imaplib.IMAP4 method), 1241
 starttls() (nntplib.NNTP method), 1246
 starttls() (smtplib.SMTP method), 1254
 STARTUPINFO (class in subprocess), 823
 stat
 module, 567
 stat (module), 391
 stat() (in module os), 567
 stat() (nntplib.NNTP method), 1248
 stat() (os.DirEntry method), 566
 stat() (pathlib.Path method), 378
 stat() (poplib.POP3 method), 1235
 stat_result (class in os), 567
 state() (tkinter.ttk.Widget method), 1418
 statement, 1910
 assert, 88
 del, 39, 77
 except, 87
 if, 29
 import, 25, 1742, 1890
 raise, 87
 try, 87
 while, 29
 staticmethod() (built-in function), 22
 Statistic (class in tracemalloc), 1638
 StatisticDiff (class in tracemalloc), 1638
 statistics (module), 329
 statistics() (tracemalloc.Snapshot method), 1637
 StatisticsError, 335
 Stats (class in pstats), 1618
 status (http.client.HTTPResponse attribute), 1227
 status() (imaplib.IMAP4 method), 1241
 statvfs() (in module os), 569
 STD_ERROR_HANDLE (in module subprocess), 824
 STD_INPUT_HANDLE (in module subprocess), 824
 STD_OUTPUT_HANDLE (in module subprocess), 824
 StdButtonBox (class in tkinter.tix), 1435
 stderr (asyncio.asyncio.subprocess.Process attribute), 870
 stderr (in module sys), 1674
 stderr (subprocess.CalledProcessError attribute), 816
 stderr (subprocess.CompletedProcess attribute), 815
 stderr (subprocess.Popen attribute), 822

stderr (subprocess.TimeoutExpired attribute), 816
stdev() (in module statistics), 334
stdin (asyncio.asyncio.subprocess.Process attribute), 870
stdin (in module sys), 1674
stdin (subprocess.Popen attribute), 822
stdout (asyncio.asyncio.subprocess.Process attribute), 870
STDOUT (in module subprocess), 815
stdout (in module sys), 1674
stdout (subprocess.CalledProcessError attribute), 816
stdout (subprocess.CompletedProcess attribute), 815
stdout (subprocess.Popen attribute), 822
stdout (subprocess.TimeoutExpired attribute), 816
step (pdb command), 1612
step (range attribute), 42
step() (tkinter.ttk.Progressbar method), 1423
stereocontrols() (osaudiodev.oss_mixer_device method), 1339
stls() (poplib.POP3 method), 1236
stop (range attribute), 42
stop() (asyncio.loop method), 877
stop() (in module tracemalloc), 1635
stop() (logging.handlers.QueueListener method), 684
stop() (tkinter.ttk.Progressbar method), 1423
stop() (unittest.TestResult method), 1516
stop_here() (bdb.Bdb method), 1603
StopAsyncIteration, 91
StopIteration, 90
stopListening() (in module logging.config), 663
stopTest() (unittest.TestResult method), 1516
stopTestRun() (unittest.TestResult method), 1516
storbinary() (ftplib.FTP method), 1231
store() (imaplib.IMAP4 method), 1241
STORE_ACTIONS (optparse.Option attribute), 1889
STORE_ATTR (opcode), 1814
STORE_DEREF (opcode), 1817
STORE_FAST (opcode), 1816
STORE_GLOBAL (opcode), 1814
STORE_NAME (opcode), 1814
STORE_SUBSCR (opcode), 1812
storlines() (ftplib.FTP method), 1232
str (built-in class), 44
 (see also string), 43
str() (in module locale), 1354
strcoll() (in module locale), 1354
StreamError, 483
StreamHandler (class in logging), 672
StreamReader (class in asyncio), 858
StreamReader (class in codecs), 164
streamreader (codecs.CodecInfo attribute), 157
StreamReaderWriter (class in codecs), 165
StreamRecoder (class in codecs), 165
StreamRequestHandler (class in socketserver), 1270
streams, 156
 stackable, 156
StreamWriter (class in asyncio), 859
StreamWriter (class in codecs), 163
streamwriter (codecs.CodecInfo attribute), 157
strerror (OSError attribute), 90
strerror() (in module os), 547
strftime() (datetime.date method), 182
strftime() (datetime.datetime method), 190
strftime() (datetime.time method), 194
strftime() (in module time), 604
strict (csv.Dialect attribute), 497
strict (in module email.policy), 1035
strict_domain (http.cookiejar.DefaultCookiePolicy attribute), 1289
strict_errors() (in module codecs), 160
strict_ns_domain (http.cookiejar.DefaultCookiePolicy attribute), 1290
strict_ns_set_initial_dollar (http.cookiejar.DefaultCookiePolicy attribute), 1290
strict_ns_set_path (http.cookiejar.DefaultCookiePolicy attribute), 1290
strict_ns_unverifiable (http.cookiejar.DefaultCookiePolicy attribute), 1290
strict_rfc2965_unverifiable (http.cookiejar.DefaultCookiePolicy attribute), 1289
strides (memoryview attribute), 74
string
 format() (built-in function), 12
 formatting, printf, 51
 interpolation, printf, 51
 methods, 44
 module, 1355
 object, 43
 str (built-in class), 44
 str() (built-in function), 22
 text sequence type, 43
STRING (in module token), 1794
string (module), 97
string (re.Match attribute), 122
string_at() (in module ctypes), 744
StringIO (class in io), 599
stringprep (module), 144
strip() (bytearray method), 61
strip() (bytes method), 61
strip() (str method), 50
strip_dirs() (pstats.Stats method), 1618
strip_python_strerror() (in module test.support), 1591
stripspaces (curses.textpad.Textbox attribute), 704

strptime() (datetime.datetime class method), 185
strptime() (in module time), 606
struct
 module, 945
Struct (class in struct), 155
struct (module), 151
struct sequence, 1910
struct_time (class in time), 606
Structure (class in ctypes), 748
structures
 C, 151
strxfrm() (in module locale), 1354
STType (in module parser), 1784
Style (class in tkinter.ttk), 1430
sub() (in module operator), 361
sub() (in module re), 116
sub() (re.Pattern method), 119
subdirs (filecmp.dircmp attribute), 398
SubElement() (in module xml.etree.ElementTree), 1126
submit() (concurrent.futures.Executor method), 808
submodule_search_locations (importlib.machinery.ModuleSpec attribute), 1774
subn() (in module re), 117
subn() (re.Pattern method), 119
subnet_of() (ipaddress.IPv4Network method), 1314
subnet_of() (ipaddress.IPv6Network method), 1315
subnets() (ipaddress.IPv4Network method), 1313
subnets() (ipaddress.IPv6Network method), 1315
Subnormal (class in decimal), 313
suboffsets (memoryview attribute), 74
subpad() (curses.window method), 697
subprocess (module), 813
subprocess_exec() (asyncio.loop method), 889
subprocess_shell() (asyncio.loop method), 890
SubprocessError, 815
SubprocessProtocol (class in asyncio), 903
SubprocessTransport (class in asyncio), 899
subscribe() (imaplib.IMAP4 method), 1242
subscript
 assignment, 39
 operation, 37
subsequent_indent (textwrap.TextWrapper attribute), 141
substitute() (string.Template method), 106
subTest() (unittest.TestCase method), 1503
subtract() (collections.Counter method), 214
subtract() (decimal.Context method), 310
subtype (email.headerregistry.ContentTypeHeader attribute), 1040
subwin() (curses.window method), 697
successful() (multiprocessing.pool.AsyncResult method), 793
suffix_map (in module mimetypes), 1102
suffix_map (mimetypes.MimeTypes attribute), 1102
suite() (in module parser), 1782
suiteClass (unittest.TestLoader attribute), 1514
sum() (built-in function), 23
summarize() (doctest.DocTestRunner method), 1488
summarize_address_range() (in module ipaddress), 1318
sunau (module), 1326
super (pyclbr.Class attribute), 1801
super() (built-in function), 23
supernet() (ipaddress.IPv4Network method), 1313
supernet() (ipaddress.IPv6Network method), 1315
supernet_of() (ipaddress.IPv4Network method), 1314
supernet_of() (ipaddress.IPv6Network method), 1315
supports_bytes_environ (in module os), 547
supports_dir_fd (in module os), 570
supports_effective_ids (in module os), 570
supports_fd (in module os), 570
supports_follow_symlinks (in module os), 571
supports_unicode_filenames (in module os.path), 389
SupportsAbs (class in typing), 1459
SupportsBytes (class in typing), 1459
SupportsComplex (class in typing), 1459
SupportsFloat (class in typing), 1459
SupportsInt (class in typing), 1459
SupportsRound (class in typing), 1459
suppress() (in module contextlib), 1698
SuppressCrashReport (class in test.support), 1597
SW_HIDE (in module subprocess), 824
swap_attr() (in module test.support), 1592
swap_item() (in module test.support), 1592
swapcase() (bytearray method), 64
swapcase() (bytes method), 64
swapcase() (str method), 50
sym_name (in module symbol), 1793
Symbol (class in symtable), 1792
symbol (module), 1793
SymbolTable (class in symtable), 1791
symlink() (in module os), 571
symlink_to() (pathlib.Path method), 383
symmetric_difference() (frozenset method), 75
symmetric_difference_update() (frozenset method), 76
symtable (module), 1791
symtable() (in module symtable), 1791
sync() (dbm.dumb.dumbdbm method), 437
sync() (dbm.gnu.gdbm method), 435
sync() (in module os), 571
sync() (osaudiodev.oss_audio_device method), 1337

sync() (shelve.Shelf method), 430
syncdown() (curses.window method), 698
synchronized() (in module multiprocessing.sharedctypes), 783
SyncManager (class in multiprocessing.managers), 785
syncok() (curses.window method), 698
syncup() (curses.window method), 698
SyntaxErr, 1143
SyntaxError, 91
SyntaxWarning, 94
sys
 module, 18
sys (module), 1659
sys_exc (2to3 fixer), 1583
sys_version (http.server.BaseHTTPRequestHandler attribute), 1276
sysconf() (in module os), 586
sysconf_names (in module os), 586
sysconfig (module), 1676
syslog (module), 1861
syslog() (in module syslog), 1861
SysLogHandler (class in logging.handlers), 678
system() (in module os), 581
system() (in module platform), 709
system_alias() (in module platform), 709
system_must_validate_cert() (in module test.support), 1589
SystemError, 91
SystemExit, 91
systemId (xml.dom.DocumentType attribute), 1138
SystemRandom (class in random), 326
SystemRandom (class in secrets), 537
SystemRoot, 820

T

-t <tarfile>
 tarfile command line option, 489
-t <zipfile>
 zipfile command line option, 481
-t, --top-level-directory directory
 unittest-discover command line option, 1496
-t, --trace
 trace command line option, 1628
-T, --trackcalls
 trace command line option, 1628
T_FMT (in module locale), 1352
T_FMT_AMPM (in module locale), 1352
tab() (tkinter.ttk.Notebook method), 1422
TabError, 91
tabnanny (module), 1799
tabs() (tkinter.ttk.Notebook method), 1422
tabsize (textwrap.TextWrapper attribute), 141
tabular
 data, 493
tag (xml.etree.ElementTree.Element attribute), 1127
tag_bind() (tkinter.ttk.Treeview method), 1429
tag_configure() (tkinter.ttk.Treeview method), 1429
tag_has() (tkinter.ttk.Treeview method), 1429
tagName (xml.dom.Element attribute), 1140
tail (xml.etree.ElementTree.Element attribute), 1127
take_snapshot() (in module tracemalloc), 1635
takewhile() (in module itertools), 346
tan() (in module cmath), 291
tan() (in module math), 288
tanh() (in module cmath), 291
tanh() (in module math), 288
TarError, 483
TarFile (class in tarfile), 483, 484
tarfile (module), 481
tarfile command line option
 -c <tarfile> <source1> ... <sourceN>, 489
 -create <tarfile> <source1> ... <sourceN>, 489
 -e <tarfile> [<output_dir>], 489
 -extract <tarfile> [<output_dir>], 489
 -l <tarfile>, 489
 -list <tarfile>, 489
 -t <tarfile>, 489
 -test <tarfile>, 489
 -v, --verbose, 489
target (xml.dom.ProcessingInstruction attribute), 1142
TarInfo (class in tarfile), 487
Task (class in asyncio), 853
task_done() (asyncio.Queue method), 872
task_done() (multiprocessing.JoinableQueue method), 775
task_done() (queue.Queue method), 834
tau (in module cmath), 292
tau (in module math), 289
tb_locals (unittest.TestResult attribute), 1515
tbreak (pdb command), 1611
tcdrain() (in module termios), 1851
tcflow() (in module termios), 1851
tcflush() (in module termios), 1851
tcgetattr() (in module termios), 1851
tcgetpgrp() (in module os), 555
Tcl() (in module tkinter), 1404
TCPServer (class in socketserver), 1266
tcsendbreak() (in module termios), 1851
tcsetattr() (in module termios), 1851
tcsetpgrp() (in module os), 555
tearDown() (unittest.TestCase method), 1502
tearDownClass() (unittest.TestCase method), 1503
tee() (in module itertools), 346
tell() (aifc.aifc method), 1325, 1326
tell() (chunk.Chunk method), 1333
tell() (io.IOBase method), 592

tell() (io.TextIOBase method), 598
tell() (mmap.mmap method), 1012
tell() (sunau.AU_read method), 1328
tell() (sunau.AU_write method), 1329
tell() (wave.Wave_read method), 1330
tell() (wave.Wave_write method), 1331
Telnet (class in telnetlib), 1260
telnetlib (module), 1260
TEMP, 401
temp_cwd() (in module test.support), 1591
temp_dir() (in module test.support), 1591
temp_umask() (in module test.support), 1592
tempdir (in module tempfile), 401
tempfile (module), 398
Template (class in pipes), 1855
Template (class in string), 106
template (string.Template attribute), 106
temporary
 file, 398
 file name, 398
TemporaryDirectory() (in module tempfile), 400
TemporaryFile() (in module tempfile), 399
teredo (ipaddress.IPV6Address attribute), 1310
TERM, 690, 691
termattrs() (in module curses), 690
terminal_size (class in os), 556
terminate() (asyncio.asyncio.subprocess.Process
 method), 869
terminate() (asyncio.SubprocessTransport method),
 903
terminate() (multiprocessing.pool.Pool method), 792
terminate() (multiprocessing.Process method), 771
terminate() (subprocess.Popen method), 822
termios (module), 1850
termname() (in module curses), 691
test (doctest.DocTestFailure attribute), 1491
test (doctest.UnexpectedException attribute), 1491
test (module), 1584
-test <tarfile>
 tarfile command line option, 489
-test <zipfile>
 zipfile command line option, 481
test() (in module cgi), 1179
TEST_DATA_DIR (in module test.support), 1588
TEST_HOME_DIR (in module test.support), 1588
TEST_SUPPORT_DIR (in module test.support),
 1588
TestCase (class in unittest), 1502
TestFailed, 1587
testfile() (in module doctest), 1480
TESTFN (in module test.support), 1587
TESTFN_ENCODING (in module test.support),
 1587
TESTFN_NONASCII (in module test.support),
 1587
TESTFN_UNDECODABLE (in module
 test.support), 1587
TESTFN_UNENCODABLE (in module
 test.support), 1587
TESTFN_UNICODE (in module test.support), 1587
TestHandler (class in test.support), 1598
TestLoader (class in unittest), 1512
testMethodPrefix (unittest.TestLoader attribute),
 1514
testmod() (in module doctest), 1481
testNamePatterns (unittest.TestLoader attribute),
 1514
TestResult (class in unittest), 1515
tests (in module imghdr), 1334
testsource() (in module doctest), 1490
testsRun (unittest.TestResult attribute), 1515
TestSuite (class in unittest), 1511
test.support (module), 1587
test.support.script_helper (module), 1598
testzip() (zipfile.ZipFile method), 477
Text (class in typing), 1462
text (in module msilib), 1832
text (traceback.TracebackException attribute), 1718
text (xml.etree.ElementTree.Element attribute),
 1127
text encoding, 1910
text file, 1910
text mode, 18
text() (in module cgitb), 1183
text() (msilib.Dialog method), 1832
text_factory (sqlite3.Connection attribute), 446
Textbox (class in curses.textpad), 703
TextCalendar (class in calendar), 207
textdomain() (in module gettext), 1342
textdomain() (in module locale), 1356
textinput() (in module turtle), 1383
TextIO (class in typing), 1463
TextIOBase (class in io), 597
TextIOWrapper (class in io), 598
TextTestResult (class in unittest), 1517
TextTestRunner (class in unittest), 1517
textwrap (module), 139
TextWrapper (class in textwrap), 140
theme_create() (tkinter.ttk.Style method), 1432
theme_names() (tkinter.ttk.Style method), 1433
theme_settings() (tkinter.ttk.Style method), 1432
theme_use() (tkinter.ttk.Style method), 1433
THOUSEP (in module locale), 1352
Thread (class in threading), 753
thread() (imaplib.IMAP4 method), 1242
thread_info (in module sys), 1675
thread_time() (in module time), 607

thread_time_ns() (in module time), 607
threading (module), 751
threading_cleanup() (in module test.support), 1595
threading_setup() (in module test.support), 1595
ThreadingHTTPServer (class in http.server), 1275
ThreadingMixIn (class in socketserver), 1267
ThreadingTCPServer (class in socketserver), 1267
ThreadingUDPServer (class in socketserver), 1267
ThreadPoolExecutor (class in concurrent.futures), 809
threads
 POSIX, 836
throw (2to3 fixer), 1583
ticket_lifetime_hint (ssl.SSLSession attribute), 983
tigetflag() (in module curses), 691
tigetnum() (in module curses), 691
tigetstr() (in module curses), 691
TILDE (in module token), 1794
tilt() (in module turtle), 1375
tiltangle() (in module turtle), 1375
time (class in datetime), 192
time (module), 600
time (ssl.SSLSession attribute), 983
time() (asyncio.loop method), 878
time() (datetime.datetime method), 187
time() (in module time), 607
Time2Internaldate() (in module imaplib), 1238
time_ns() (in module time), 607
timedelta (class in datetime), 177
TimedRotatingFileHandler (class in logging.handlers), 676
timegm() (in module calendar), 210
timeit (module), 1622
timeit command line option
 -h, --help, 1625
 -n N, --number=N, 1625
 -p, --process, 1625
 -r N, --repeat=N, 1625
 -s S, --setup=S, 1625
 -u, --unit=U, 1625
 -v, --verbose, 1625
timeit() (in module timeit), 1623
timeit() (timeit.Timer method), 1623
timeout, 930
timeout (socketserver.BaseServer attribute), 1269
timeout (ssl.SSLSession attribute), 983
timeout (subprocess.TimeoutExpired attribute), 816
timeout() (curses.window method), 698
TIMEOUT_MAX (in module _thread), 837
TIMEOUT_MAX (in module threading), 752
TimeoutError, 93, 772, 813, 874
TimeoutExpired, 815
Timer (class in threading), 761
Timer (class in timeit), 1623
TimerHandle (class in asyncio), 890
times() (in module os), 581
TIMESTAMP (py_compile.PycInvalidationMode attribute), 1802
timestamp() (datetime.datetime method), 188
timetuple() (datetime.date method), 181
timetuple() (datetime.datetime method), 188
timetz() (datetime.datetime method), 187
timezone (class in datetime), 202
timezone (in module time), 610
title() (bytearray method), 64
title() (bytes method), 64
title() (in module turtle), 1385
title() (str method), 50
Tix, 1433
tix_addbitmapdir() (tkinter.tix.tixCommand method), 1437
tix_cget() (tkinter.tix.tixCommand method), 1437
tix_configure() (tkinter.tix.tixCommand method), 1437
tix_filedialog() (tkinter.tix.tixCommand method), 1437
tix_getbitmap() (tkinter.tix.tixCommand method), 1437
tix_getimage() (tkinter.tix.tixCommand method), 1438
TIX_LIBRARY, 1434
tix_option_get() (tkinter.tix.tixCommand method), 1438
tix_resethandlers() (tkinter.tix.tixCommand method), 1438
tixResetoptions() (tkinter.tix.tixCommand method), 1438
tixCommand (class in tkinter.tix), 1437
Tk, 1403
Tk (class in tkinter), 1404
Tk (class in tkinter.tix), 1434
Tk Option Data Types, 1411
Tkinter, 1403
tkinter (module), 1403
tkinter.scrolledtext (module), 1438
tkinter.tix (module), 1433
tkinter.ttk (module), 1414
TList (class in tkinter.tix), 1436
TLS, 950
TLSv1 (ssl.TLSVersion attribute), 963
TLSv1_1 (ssl.TLSVersion attribute), 963
TLSv1_2 (ssl.TLSVersion attribute), 963
TLSv1_3 (ssl.TLSVersion attribute), 963
TLSVersion (class in ssl), 962
TMP, 401
TMPDIR, 401
to_bytes() (int method), 33
to_eng_string() (decimal.Context method), 310
to_eng_string() (decimal.Decimal method), 304
to_integral() (decimal.Decimal method), 304

to_integral_exact() (decimal.Context method), 311
 to_integral_exact() (decimal.Decimal method), 304
 to_integral_value() (decimal.Decimal method), 305
 to_sci_string() (decimal.Context method), 311
 ToASCII() (in module encodings.idna), 173
 tobuf() (tarfile.TarInfo method), 487
 tobytes() (array.array method), 240
 tobytes() (memoryview method), 70
 today() (datetime.date class method), 179
 today() (datetime.datetime class method), 183
 tofile() (array.array method), 240
 tok_name (in module token), 1793
 token (module), 1793
 token (shlex.shlex attribute), 1400
 token_bytes() (in module secrets), 538
 token_hex() (in module secrets), 538
 token_urlsafe() (in module secrets), 538
 TokenError, 1796
 tokenize (module), 1795
 tokenize command line option
 -e, --exact, 1797
 -h, --help, 1797
 tokenize() (in module tokenize), 1796
 tolist() (array.array method), 240
 tolist() (memoryview method), 70
 tolist() (parser.ST method), 1784
 tomono() (in module audioop), 1323
 toordinal() (datetime.date method), 181
 toordinal() (datetime.datetime method), 188
 top() (curses.panel.Panel method), 708
 top() (poplib.POP3 method), 1235
 top_panel() (in module curses.panel), 707
 toprettyxml() (xml.dom.minidom.Node method), 1146
 tostereo() (in module audioop), 1323
 tostring() (array.array method), 240
 tostring() (in module xml.etree.ElementTree), 1127
 tostringlist() (in module xml.etree.ElementTree), 1127
 total_changes (sqlite3.Connection attribute), 446
 total_ordering() (in module functools), 354
 total_seconds() (datetime.timedelta method), 179
 totuple() (parser.ST method), 1784
 touch() (pathlib.Path method), 383
 touchline() (curses.window method), 698
 touchwin() (curses.window method), 698
 tounicode() (array.array method), 240
 ToUnicode() (in module encodings.idna), 173
 towards() (in module turtle), 1367
 toxml() (xml.dom.minidom.Node method), 1146
 tparm() (in module curses), 691
 Trace (class in trace), 1629
 Trace (class in tracemalloc), 1638
 trace (module), 1627
 trace command line option
 -c, -count, 1628
 -C, -coverdir=<dir>, 1628
 -f, -file=<file>, 1628
 -g, -timing, 1628
 -help, 1627
 -ignore-dir=<dir>, 1628
 -ignore-module=<mod>, 1628
 -l, -listfuncs, 1628
 -m, -missing, 1628
 -R, -no-report, 1628
 -r, -report, 1628
 -s, -summary, 1628
 -t, -trace, 1628
 -T, -trackcalls, 1628
 -version, 1627
 trace function, 752, 1666, 1672
 trace() (in module inspect), 1739
 trace_dispatch() (bdb.Bdb method), 1602
 traceback
 object, 1662, 1715
 Traceback (class in tracemalloc), 1639
 traceback (module), 1715
 traceback (tracemalloc.Statistic attribute), 1638
 traceback (tracemalloc.StatisticDiff attribute), 1638
 traceback (tracemalloc.Trace attribute), 1639
 traceback_limit (tracemalloc.Snapshot attribute), 1637
 traceback_limit (wsgiref.handlers.BaseHandler attribute), 1191
 TracebackException (class in traceback), 1717
 tracebacklimit (in module sys), 1675
 tracebacks
 in CGI scripts, 1182
 TracebackType (class in types), 250
 tracemalloc (module), 1630
 tracer() (in module turtle), 1381
 traces (tracemalloc.Snapshot attribute), 1637
 transfercmd() (ftplib.FTP method), 1232
 transient_internet() (in module test.support), 1592
 TransientResource (class in test.support), 1597
 translate() (bytearray method), 58
 translate() (bytes method), 58
 translate() (in module fnmatch), 405
 translate() (str method), 51
 translation() (in module gettext), 1343
 transport (asyncio.StreamWriter attribute), 859
 Transport (class in asyncio), 899
 Transport Layer Security, 950
 Tree (class in tkinter.tix), 1436
 TreeBuilder (class in xml.etree.ElementTree), 1131
 Treeview (class in tkinter.ttk), 1426
 triangular() (in module random), 326
 triple-quoted string, 1910

True, 29, 84
true, 29
True (built-in variable), 27
truediv() (in module operator), 361
trunc() (in module math), 31, 286
truncate() (in module os), 571
truncate() (io.IOBase method), 592
truth
 value, 29
truth() (in module operator), 360
try
 statement, 87
ttk, 1414
tty
 I/O control, 1850
tty (module), 1852
ttynname() (in module os), 555
tuple
 object, 39, 41
tuple (built-in class), 41
Tuple (class in typing), 1466
tuple2st() (in module parser), 1782
tuple_params (2to3 fixer), 1583
Turtle (class in turtle), 1386
turtle (module), 1357
turtledemo (module), 1390
turtles() (in module turtle), 1385
TurtleScreen (class in turtle), 1386
turtlesize() (in module turtle), 1374
type, 1910
 Boolean, 6
 built-in function, 83
 object, 24
 operations on dictionary, 77
 operations on list, 39
type (built-in class), 23
Type (class in typing), 1458
type (optparse.Option attribute), 1876
type (socket.socket attribute), 945
type (tarfile.TarInfo attribute), 487
type (urllib.request.Request attribute), 1198
type alias, 1910
type hint, 1910
TYPE_CHECKER (optparse.Option attribute), 1887
TYPE_CHECKING (in module typing), 1467
typeahead() (in module curses), 691
typecode (array.array attribute), 238
typecodes (in module array), 238
TYPED_ACTIONS (optparse.Option attribute), 1889
typed_subpart_iterator() (in module email.iterators), 1071
TypeError, 91
types
 built-in, 29
 immutable sequence, 39
 module, 83
 mutable sequence, 39
 operations on integer, 32
 operations on mapping, 77
 operations on numeric, 31
 operations on sequence, 37, 39
types (2to3 fixer), 1583
types (module), 248
TYPES (optparse.Option attribute), 1887
types_map (in module mimetypes), 1102
types_map (mimetypes.MimeTypes attribute), 1102
types_map_inv (mimetypes.MimeTypes attribute), 1103
TypeVar (class in typing), 1457
typing (module), 1451
TZ, 607, 608
tzinfo (class in datetime), 195
tzinfo (datetime.datetime attribute), 185
tzinfo (datetime.time attribute), 192
tzname (in module time), 610
tzname() (datetime.datetime method), 188
tzname() (datetime.time method), 194
tzname() (datetime.timezone method), 202
tzname() (datetime.tzinfo method), 196
tzset() (in module time), 607

U

-u, --unit=U
 timeit command line option, 1625
ucd_3_2_0 (in module unicodedata), 144
udata (select.kevent attribute), 992
UDPServer (class in socketserver), 1266
UF_APPEND (in module stat), 395
UF_COMPRESSED (in module stat), 396
UF_HIDDEN (in module stat), 396
UF_IMMUTABLE (in module stat), 395
UF_NODUMP (in module stat), 395
UF_NOUNLINK (in module stat), 396
UF_OPAQUE (in module stat), 395
uid (tarfile.TarInfo attribute), 487
uid() (imaplib.IMAP4 method), 1242
uidl() (poplib.POP3 method), 1236
u-LAW, 1321, 1326, 1334
ulaw2lin() (in module audioop), 1323
umask() (in module os), 547
unalias (pdb command), 1613
uname (tarfile.TarInfo attribute), 488
uname() (in module os), 547
uname() (in module platform), 709
UNARY_INVERT (opcode), 1810
UNARY_NEGATIVE (opcode), 1810

UNARY_NOT (opcode), 1810
 UNARY_POSITIVE (opcode), 1810
 UnboundLocalError, 92
 unbuffered I/O, 18
 UNC paths
 and os.makedirs(), 562
 UNCHECKED_HASH
 (py_compile.PycInvalidationMode attribute), 1802
 unconsumed_tail (zlib.Decompress attribute), 462
 unctrl() (in module curses), 691
 unctrl() (in module curses.ascii), 706
 Underflow (class in decimal), 313
 undisplay (pdb command), 1613
 undo() (in module turtle), 1366
 undobufferentries() (in module turtle), 1378
 undoc_header (cmd.Cmd attribute), 1394
 unescape() (in module html), 1111
 unescape() (in module xml.sax.saxutils), 1158
 UnexpectedException, 1491
 unexpectedSuccesses (unittest.TestResult attribute), 1515
 unfreeze() (in module gc), 1725
 unget_wch() (in module curses), 691
 ungetch() (in module curses), 691
 ungetch() (in module msvcr), 1833
 ungetmouse() (in module curses), 691
 ungetwch() (in module msvcr), 1834
 unhexlify() (in module binascii), 1109
 Unicode, 142, 156
 database, 142
 unicode (2to3 fixer), 1583
 unicodedata (module), 142
 UnicodeDecodeError, 92
 UnicodeEncodeError, 92
 UnicodeError, 92
 UnicodeTranslateError, 92
 UnicodeWarning, 94
 unidata_version (in module unicodedata), 144
 unified_diff() (in module difflib), 131
 uniform() (in module random), 325
 Unimplemented FileMode, 1223
 Union (class in ctypes), 748
 Union (in module typing), 1465
 union() (frozenset method), 75
 unique() (in module enum), 261, 264
 unittest (module), 1493
 unittest command line option
 -b, --buffer, 1495
 -c, --catch, 1495
 -f, --failfast, 1495
 -k, 1495
 --locals, 1496
 unittest-discover command line option
 -p, --pattern pattern, 1496
 -s, --start-directory directory, 1496
 -t, --top-level-directory directory, 1496
 -v, --verbose, 1496
 unittest.mock (module), 1521
 universal newlines, 1911
 bytearray.splitlines method, 63
 bytes.splitlines method, 63
 csv.reader function, 493
 importlib.abc.InspectLoader.get_source method, 1766
 io.IncrementalNewlineDecoder class, 599
 io.TextIOWrapper class, 598
 open() built-in function, 18
 str.splitlines method, 49
 subprocess module, 816
 UNIX
 file control, 1853
 I/O control, 1853
 unix_dialect (class in csv), 496
 unix_shell (in module test.support), 1587
 UnixDatagramServer (class in socketserver), 1266
 UnixStreamServer (class in socketserver), 1266
 unknown (uuid.SafeUUID attribute), 1263
 unknown_decl() (html.parser.HTMLParser method), 1114
 unknown_open() (urllib.request.BaseHandler method), 1201
 unknown_open() (urllib.request.UnknownHandler method), 1204
 UnknownHandler (class in urllib.request), 1198
 UnknownProtocol, 1223
 UnknownTransferEncoding, 1223
 unlink() (in module os), 572
 unlink() (in module test.support), 1588
 unlink() (pathlib.Path method), 383
 unlink() (xml.dom.minidom.Node method), 1146
 unload() (in module test.support), 1588
 unlock() (mailbox.Babyl method), 1090
 unlock() (mailbox.Mailbox method), 1086
 unlock() (mailbox.Maildir method), 1087
 unlock() (mailbox.mbox method), 1088
 unlock() (mailbox.MH method), 1089
 unlock() (mailbox.MMDF method), 1090
 unpack() (in module struct), 152
 unpack() (struct.Struct method), 156
 unpack_archive() (in module shutil), 412
 unpack_array() (xdrlib.Unpacker method), 521
 unpack_bytes() (xdrlib.Unpacker method), 521
 unpack_double() (xdrlib.Unpacker method), 520
 UNPACK_EX (opcode), 1814
 unpack_farray() (xdrlib.Unpacker method), 521
 unpack_float() (xdrlib.Unpacker method), 520
 unpack_fopaque() (xdrlib.Unpacker method), 521

unpack_from() (in module struct), 152
unpack_from() (struct.Struct method), 156
unpack_fstring() (xdrlib.Unpacker method), 520
unpack_list() (xdrlib.Unpacker method), 521
unpack_opaque() (xdrlib.Unpacker method), 521
UNPACK_SEQUENCE (opcode), 1814
unpack_string() (xdrlib.Unpacker method), 521
Unpacker (class in xdrlib), 519
unparsedEntityDecl() (xml.sax.handlerDTDHandler method), 1157
UnparsedEntityDeclHandler()
 (xml.parsers.expat.xmlparser method), 1166
Unpickler (class in pickle), 419
UnpicklingError, 418
unquote() (in module email.utils), 1069
unquote() (in module urllib.parse), 1216
unquote_plus() (in module urllib.parse), 1217
unquote_to_bytes() (in module urllib.parse), 1217
unregister() (in module atexit), 1714
unregister() (in module faulthandler), 1607
unregister() (select.devpoll method), 988
unregister() (select.epoll method), 989
unregister() (selectors.BaseSelector method), 993
unregister() (select.poll method), 990
unregister_archive_format() (in module shutil), 412
unregister_dialect() (in module csv), 494
unregister_unpack_format() (in module shutil), 413
unsafe (uuid.SafeUUID attribute), 1263
unset() (test.support.EnvironmentVarGuard method), 1597
unsetenv() (in module os), 547
UnstructuredHeader (class in email.headerregistry), 1039
unsubscribe() (imaplib.IMAP4 method), 1242
UnsupportedOperation, 589
until (pdb command), 1612
untokenize() (in module tokenize), 1796
untouchwin() (curses.window method), 698
unused_data (bz2.BZ2Decompressor attribute), 467
unused_data (lzma.LZMADecompressor attribute), 471
unused_data (zlib.Decompress attribute), 461
unverifiable (urllib.request.Request attribute), 1198
unwrap() (in module inspect), 1738
unwrap() (ssl.SSLSocket method), 966
up (pdb command), 1610
up() (in module turtle), 1369
update() (collections.Counter method), 214
update() (dict method), 79
update() (frozenset method), 76
update() (hashlib.hash method), 527
update() (hmac.HMAC method), 536
update() (http.cookies.Morsel method), 1282
update() (in module turtle), 1381
update() (mailbox.Mailbox method), 1085
update() (mailbox.Maildir method), 1087
update() (trace.CoverageResults method), 1629
update_authenticated() (url
 lib.request.HTTPPasswordMgrWithPriorAuth
 method), 1203
update_lines_cols() (in module curses), 691
update_panels() (in module curses.panel), 707
update_visible() (mailbox.BabylMessage method), 1096
update_wrapper() (in module functools), 358
upper() (bytearray method), 65
upper() (bytes method), 65
upper() (str method), 51
urandom() (in module os), 587
URL, 1175, 1211, 1218, 1274
 parsing, 1211
 relative, 1211
url (xmlrpc.client.ProtocolError attribute), 1297
url2pathname() (in module urllib.request), 1194
urlopen() (in module urllib.request), 1208
urldefrag() (in module urllib.parse), 1214
urlencode() (in module urllib.parse), 1217
URLError, 1218
urljoin() (in module urllib.parse), 1214
urllib (2to3 fixer), 1584
urllib (module), 1192
urllib.error (module), 1218
urllib.parse (module), 1211
urllib.request
 module, 1222
urllib.request (module), 1193
urllib.response (module), 1210
urllib.robotparser (module), 1218
urlopen() (in module urllib.request), 1193
URLopener (class in urllib.request), 1208
urlparse() (in module urllib.parse), 1211
urlretrieve() (in module urllib.request), 1208
urlsafe_b64decode() (in module base64), 1104
urlsafe_b64encode() (in module base64), 1104
urlsplit() (in module urllib.parse), 1213
urlunparse() (in module urllib.parse), 1213
urlunsplit() (in module urllib.parse), 1213
urn (uuid.UUID attribute), 1264
use_default_colors() (in module curses), 692
use_env() (in module curses), 692
use_rawinput (cmd.Cmd attribute), 1394
UseForeignDTD() (xml.parsers.expat.xmlparser
 method), 1164
USER, 685
user
 effective id, 544
 id, 545

id, setting, 547
 user() (poplib.POP3 method), 1235
 USER_BASE (in module site), 1744
 user_call() (bdb.Bdb method), 1603
 user_exception() (bdb.Bdb method), 1603
 user_line() (bdb.Bdb method), 1603
 user_return() (bdb.Bdb method), 1603
 USER_SITE (in module site), 1744
 -user-base
 site command line option, 1744
 usercustomize
 module, 1743
 UserDict (class in collections), 226
 UserList (class in collections), 226
 USERNAME, 544, 685
 username (email.headerregistry.Address attribute), 1042
 USERPROFILE, 386
 userptr() (curses.panel.Panel method), 708
 -user-site
 site command line option, 1745
 UserString (class in collections), 227
 UserWarning, 94
 USTAR_FORMAT (in module tarfile), 483
 UTC, 601
 utc (datetime.timezone attribute), 203
 utcfromtimestamp() (datetime.datetime class method), 184
 utcnow() (datetime.datetime class method), 184
 utcoffset() (datetime.datetime method), 187
 utcoffset() (datetime.time method), 194
 utcoffset() (datetime.timezone method), 202
 utcoffset() (datetime.tzinfo method), 195
 utctimetuple() (datetime.datetime method), 188
 utf8 (email.policy.EmailPolicy attribute), 1033
 utf8() (poplib.POP3 method), 1236
 utf8_enabled (imaplib.IMAP4 attribute), 1242
 utime() (in module os), 572
 uu
 module, 1107
 uu (module), 1110
 UUID (class in uuid), 1263
 uuid (module), 1262
 uuid1, 1264
 uuid1() (in module uuid), 1264
 uuid3, 1264
 uuid3() (in module uuid), 1264
 uuid4, 1264
 uuid4() (in module uuid), 1264
 uuid5, 1265
 uuid5() (in module uuid), 1264
 UuidCreate() (in module msilib), 1827

V

-v, --verbose
 tarfile command line option, 489
 timeit command line option, 1625
 unittest-discover command line option, 1496
 v4_int_to_packed() (in module ipaddress), 1318
 v6_int_to_packed() (in module ipaddress), 1318
 validator() (in module wsgiref.validate), 1188
 value
 truth, 29
 value (ctypes._SimpleCData attribute), 746
 value (http.cookiejar.Cookie attribute), 1291
 value (http.cookies.Morsel attribute), 1282
 value (xml.dom.Attr attribute), 1141
 Value() (in module multiprocessing), 781
 Value() (in module multiprocessing.sharedctypes), 782
 Value() (multiprocessing.managers.SyncManager method), 786
 value_decode() (http.cookies.BaseCookie method), 1281
 value_encode() (http.cookies.BaseCookie method), 1281
 ValueError, 92
 valuerefs() (weakref.WeakValueDictionary method), 243
 values
 Boolean, 84
 values() (contextvars.Context method), 841
 values() (dict method), 79
 values() (email.message.EmailMessage method), 1017
 values() (email.message.Message method), 1056
 values() (mailbox.Mailbox method), 1084
 values() (types.MappingProxyType method), 251
 ValuesView (class in collections.abc), 229
 ValuesView (class in typing), 1460
 var (contextvars.contextvars.Token.Token attribute), 840
 variable annotation, 1911
 variance() (in module statistics), 334
 variant (uuid.UUID attribute), 1264
 vars() (built-in function), 24
 VBAR (in module token), 1794
 vbar (tkinter.scrolledtext.ScrolledText attribute), 1438
 VBAREQUAL (in module token), 1794
 Vec2D (class in turtle), 1387
 venv (module), 1643
 VERBOSE (in module re), 115
 verbose (in module tabnanny), 1799
 verbose (in module test.support), 1587
 verify() (smtplib.SMTP method), 1253

verify_client_post_handshake() (ssl.SSLSocket method), 966
verify_code (ssl.SSLCertVerificationError attribute), 953
VERIFY_CRL_CHECK_CHAIN (in module ssl), 957
VERIFY_CRL_CHECK_LEAF (in module ssl), 957
VERIFY_DEFAULT (in module ssl), 957
verify_flags (ssl.SSLContext attribute), 975
verify_message (ssl.SSLCertVerificationError attribute), 953
verify_mode (ssl.SSLContext attribute), 975
verify_request() (socketserver.BaseServer method), 1270
VERIFY_X509_STRICT (in module ssl), 957
VERIFY_X509_TRUSTED_FIRST (in module ssl), 958
VerifyFlags (class in ssl), 958
VerifyMode (class in ssl), 957
—version
 trace command line option, 1627
version (email.headerregistry.MIMEVersionHeader attribute), 1040
version (http.client.HTTPResponse attribute), 1227
version (http.cookiejar.Cookie attribute), 1290
version (in module curses), 698
version (in module marshal), 433
version (in module sqlite3), 439
version (in module sys), 1676
version (ipaddress.IPv4Address attribute), 1308
version (ipaddress.IPv4Network attribute), 1312
version (ipaddress.IPv6Address attribute), 1309
version (ipaddress.IPv6Network attribute), 1315
version (urllib.request.URLopener attribute), 1209
version (uuid.UUID attribute), 1264
version() (in module ensurepip), 1642
version() (in module platform), 709
version() (ssl.SSLSocket method), 966
version_info (in module sqlite3), 439
version_info (in module sys), 1676
version_string() (http.server.BaseHTTPRequestHandler method), 1278
vformat() (string.Formatter method), 98
virtual
 Environments, 1643
virtual environment, 1911
virtual machine, 1911
visit() (ast.NodeVisitor method), 1790
vline() (curses.window method), 698
voidcmd() (ftplib.FTP method), 1231
volume (zipfile.ZipInfo attribute), 480
vonmisesvariate() (in module random), 326

W

W_OK (in module os), 558
wait() (asyncio.asyncio.subprocess.Process method), 869
wait() (asyncio.Condition method), 865
wait() (asyncio.Event method), 864
wait() (in module asyncio), 851
wait() (in module concurrent.futures), 812
wait() (in module multiprocessing.connection), 794
wait() (in module os), 581
wait() (multiprocessing.pool.AsyncResult method), 792
wait() (subprocess.Popen method), 821
wait() (threading.Barrier method), 762
wait() (threading.Condition method), 758
wait() (threading.Event method), 760
wait3() (in module os), 583
wait4() (in module os), 583
wait_closed() (asyncio.Server method), 891
wait_closed() (asyncio.StreamWriter method), 859
wait_for() (asyncio.Condition method), 865
wait_for() (in module asyncio), 850
wait_for() (threading.Condition method), 758
wait_threads_exit() (in module test.support), 1592
waitid() (in module os), 582
waitpid() (in module os), 582
walk() (email.message.EmailMessage method), 1019
walk() (email.message.Message method), 1059
walk() (in module ast), 1790
walk() (in module os), 572
walk_packages() (in module pkgutil), 1755
walk_stack() (in module traceback), 1717
walk_tb() (in module traceback), 1717
want (doctest.Example attribute), 1485
warn() (in module warnings), 1686
warn_explicit() (in module warnings), 1686
Warning, 94, 452
warning() (in module logging), 658
warning() (logging.Logger method), 648
warning() (xml.sax.handler.ErrorHandler method), 1157
Warnings, 1681
warnings (module), 1681
WarningsRecorder (class in test.support), 1598
warnoptions (in module sys), 1676
wasSuccessful() (unittest.TestResult method), 1515
WatchedFileHandler (class in logging.handlers), 674
wave (module), 1329
WCONTINUED (in module os), 583
WCOREDUMP() (in module os), 583
WeakKeyDictionary (class in weakref), 242
WeakMethod (class in weakref), 243
weakref (module), 240
WeakSet (class in weakref), 243

WeakValueDictionary (class in `weakref`), 242
`webbrowser` (module), 1173
`weekday()` (`datetime.date` method), 181
`weekday()` (`datetime.datetime` method), 188
`weekday()` (in module `calendar`), 209
`weekheader()` (in module `calendar`), 209
`weibullvariate()` (in module `random`), 326
`WEXITED` (in module `os`), 582
`WEXITSTATUS()` (in module `os`), 584
`wfile` (`http.server.BaseHTTPRequestHandler` attribute), 1276
`what()` (in module `imghdr`), 1334
`what()` (in module `sndhdr`), 1335
`what hdr()` (in module `sndhdr`), 1335
`whatis` (`pdb` command), 1613
`when()` (`asyncio.TimerHandle` method), 890
`where` (`pdb` command), 1610
`which()` (in module `shutil`), 409
`whichdb()` (in module `dbm`), 433
`while`
 statement, 29
`whitespace` (in module `string`), 98
`whitespace` (`shlex.shlex` attribute), 1399
`whitespace_split` (`shlex.shlex` attribute), 1400
`Widget` (class in `tkinter.ttk`), 1418
`width` (`textwrap.TextWrapper` attribute), 140
`width()` (in module `turtle`), 1369
`WIFCONTINUED()` (in module `os`), 583
`WIFEXITED()` (in module `os`), 583
`WIFSIGNALLED()` (in module `os`), 583
`WIFSTOPPED()` (in module `os`), 583
`win32_ver()` (in module `platform`), 710
`WinDLL` (class in `ctypes`), 737
`window manager` (`widgets`), 1410
`window()` (`curses.panel.Panel` method), 708
`window_height()` (in module `turtle`), 1385
`window_width()` (in module `turtle`), 1385
`Windows ini file`, 499
`WindowsError`, 92
`WindowsPath` (class in `pathlib`), 377
`WindowsProactorEventLoopPolicy` (class in `asyncio`), 913
`WindowsRegistryFinder` (class in `im-
portlib.machinery`), 1770
`winerror` (`OSError` attribute), 90
`WinError()` (in module `ctypes`), 744
`WINFUNCNTYPE()` (in module `ctypes`), 740
`winreg` (module), 1834
`WinSock`, 987
`winsound` (module), 1842
`winver` (in module `sys`), 1676
`WITH_CLEANUP_FINISH` (opcode), 1814
`WITH_CLEANUP_START` (opcode), 1814
`with_hostmask` (`ipaddress.IPv4Interface` attribute), 1317
`with_hostmask` (`ipaddress.IPv4Network` attribute), 1312
`with_hostmask` (`ipaddress.IPv6Interface` attribute), 1317
`with_hostmask` (`ipaddress.IPv6Network` attribute), 1315
`with_name()` (`pathlib.PurePath` method), 376
`with_netmask` (`ipaddress.IPv4Interface` attribute), 1317
`with_netmask` (`ipaddress.IPv4Network` attribute), 1312
`with_netmask` (`ipaddress.IPv6Interface` attribute), 1317
`with_netmask` (`ipaddress.IPv6Network` attribute), 1315
`with_prefixlen` (`ipaddress.IPv4Interface` attribute), 1317
`with_prefixlen` (`ipaddress.IPv4Network` attribute), 1312
`with_prefixlen` (`ipaddress.IPv6Interface` attribute), 1317
`with_prefixlen` (`ipaddress.IPv6Network` attribute), 1315
`with_pymalloc()` (in module `test.support`), 1589
`with_suffix()` (`pathlib.PurePath` method), 377
`with_traceback()` (`BaseException` method), 88
`WNOHANG` (in module `os`), 583
`WNOWAIT` (in module `os`), 582
`wordchars` (`shlex.shlex` attribute), 1399
`World Wide Web`, 1173, 1211, 1218
`wrap()` (in module `textwrap`), 139
`wrap()` (`textwrap.TextWrapper` method), 142
`wrap_bio()` (`ssl.SSLContext` method), 972
`wrap_future()` (in module `asyncio`), 896
`wrap_socket()` (in module `ssl`), 956
`wrap_socket()` (`ssl.SSLContext` method), 972
`wrapper()` (in module `curses`), 692
`WrapperDescriptorType` (in module `types`), 250
`wraps()` (in module `functools`), 358
`WRITABLE` (in module `tkinter`), 1414
`writable()` (`asyncore.dispatcher` method), 997
`writable()` (`io.IOBase` method), 592
`write()` (`asyncio.StreamWriter` method), 859
`write()` (`asyncio.WriteTransport` method), 902
`write()` (`codecs.StreamWriter` method), 163
`write()` (`code.InteractiveInterpreter` method), 1748
`write()` (`configparser.ConfigParser` method), 515
`write()` (`email.generator.BytesGenerator` method), 1027
`write()` (`email.generator.Generator` method), 1028
`write()` (in module `os`), 555
`write()` (in module `turtle`), 1372

write() (`io.BufferedIOBase` method), 594
write() (`io.BufferedReader` method), 596
write() (`io.RawIOBase` method), 593
write() (`io.TextIOBase` method), 598
write() (`mmap.mmap` method), 1012
write() (`osaudiodev.oss_audio_device` method), 1336
write() (`ssl.MemoryBIO` method), 982
write() (`ssl.SSLSocket` method), 964
write() (`telnetlib.Telnet` method), 1261
write() (`xml.etree.ElementTree.ElementTree` method), 1130
write() (`zipfile.ZipFile` method), 477
write_byte() (`mmap.mmap` method), 1012
write_bytes() (`pathlib.Path` method), 383
write_docstringdict() (in module `turtle`), 1388
write_eof() (`asyncio.StreamWriter` method), 859
write_eof() (`asyncio.WriteTransport` method), 902
write_eof() (`ssl.MemoryBIO` method), 982
write_history_file() (in module `readline`), 146
write_results() (`trace.CoverageResults` method), 1629
write_text() (`pathlib.Path` method), 383
write_through (`io.TextIOWrapper` attribute), 598
writeall() (`osaudiodev.oss_audio_device` method), 1336
writeframes() (`aifc.aifc` method), 1326
writeframes() (`sunau.AU_write` method), 1329
writeframes() (`wave.Wave_write` method), 1331
writeframesraw() (`aifc.aifc` method), 1326
writeframesraw() (`sunau.AU_write` method), 1329
writeframesraw() (`wave.Wave_write` method), 1331
writeheader() (`csv.DictWriter` method), 498
writelines() (`asyncio.StreamWriter` method), 859
writelines() (`asyncio.WriteTransport` method), 902
writelines() (`codecs.StreamWriter` method), 163
writelines() (`io.IOBase` method), 592
writePlist() (in module `plistlib`), 523
writePlistToBytes() (in module `plistlib`), 523
writepy() (`zipfile.PyZipFile` method), 479
writer (`formatter.formatter` attribute), 1821
writer() (in module `csv`), 494
writerow() (`csv.csvwriter` method), 498
writerows() (`csv.csvwriter` method), 498
writestr() (`zipfile.ZipFile` method), 478
WriteTransport (class in `asyncio`), 899
writev() (in module `os`), 555
writexml() (`xml.dom.minidom.Node` method), 1146
WrongDocumentErr, 1143
ws_comma (`2to3 fixer`), 1584
wsgi_file_wrapper (`wsgiref.handlers.BaseHandler` attribute), 1191
wsgi_multiprocess (`wsgiref.handlers.BaseHandler` attribute), 1190

wsgi_multithread (`wsgiref.handlers.BaseHandler` attribute), 1190
wsgi_run_once (`wsgiref.handlers.BaseHandler` attribute), 1190
wsgiref (module), 1183
wsgiref.handlers (module), 1188
wsgiref.headers (module), 1185
wsgiref.simple_server (module), 1186
wsgiref.util (module), 1183
wsgiref.validate (module), 1187
WSGIRequestHandler (class in `wsgiref.simple_server`), 1187
WSGIServer (class in `wsgiref.simple_server`), 1187
wShowWindow (`subprocess.STARTUPINFO` attribute), 823
WSTOPPED (in module `os`), 582
WSTOPSIG() (in module `os`), 584
wstring_at() (in module `ctypes`), 744
WTERMSIG() (in module `os`), 584
WUNTRACED (in module `os`), 583
WWW, 1173, 1211, 1218
 server, 1175, 1274

X

X
X (in module `re`), 115
-x regex
compileall command line option, 1803
X509 certificate, 975
X_OK (in module `os`), 558
xatom() (`imaplib.IMAP4` method), 1242
XATTR_CREATE (in module `os`), 575
XATTR_REPLACE (in module `os`), 575
XATTR_SIZE_MAX (in module `os`), 575
xcor() (in module `turtle`), 1367
XDR, 519
xdrlib (module), 519
xhdr() (`nntplib.NNTP` method), 1249
XHTML, 1111
XHTML_NAMESPACE (in module `xml.dom`), 1135
xml (module), 1117
XML() (in module `xml.etree.ElementTree`), 1127
XML_ERROR_ABORTED (in module `xml.parsers.expat.errors`), 1171
XML_ERROR_ASYNC_ENTITY (in module `xml.parsers.expat.errors`), 1170
XML_ERROR_ATTRIBUTE_EXTERNAL_ENTITY_REF (in module `xml.parsers.expat.errors`), 1170
XML_ERROR_BAD_CHAR_REF (in module `xml.parsers.expat.errors`), 1170
XML_ERROR_BINARY_ENTITY_REF (in module `xml.parsers.expat.errors`), 1170
XML_ERROR_CANT_CHANGE_FEATURE_ONCE_PARSING (in module `xml.parsers.expat.errors`), 1171

XML_ERROR_DUPLICATE_ATTRIBUTE (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_ENTITY_DECLARED_IN_PE (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_EXTERNAL_ENTITY_HANDLING (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_FEATURE_REQUIRES_XML_DTD (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_FINISHED (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_INCOMPLETE_PE (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_INCORRECT_ENCODING (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_INVALID_TOKEN (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_JUNK_AFTER_DOC_ELEMENT (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_MISPLACED_XML_PI (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_NO_ELEMENTS (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_NO_MEMORY (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_NOT_STANDALONE (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_NOT_SUSPENDED (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_PARAM_ENTITY_REF (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_PARTIAL_CHAR (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_PUBLICID (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_RECURSIVE_ENTITY_REF (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_SUSPEND_PE (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_SUSPENDED (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_SYNTAX (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_TAG_MISMATCH (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_TEXT_DECL (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_UNBOUND_PREFIX (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_UNCLOSED_CDATA_SECTION (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_UNCLOSED_TOKEN (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_UNDECLARING_PREFIX (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_UNDEFINED_ENTITY (in module `xml.parsers.expat.errors`), [1170](#)
XML_ERROR_UNEXPECTED_STATE (in module `xml.parsers.expat.errors`), [1171](#)
XML_ERROR_UNKNOWN_ENCODING (in module `xml.parsers.expat.errors`), [1170](#)
XML_NAMESPACE (in module `xml.dom`), [1135](#)
xmlcharrefreplace_errors() (in module `codecs`), [161](#)
XmlDeclHandler() (in module `xml.parsers.expat.xmlparser` method), [1165](#)
xml.dom (module), [1134](#)
xml.dom.minidom (module), [1144](#)
xml.dom.pulldom (module), [1149](#)
xml.etree.ElementTree (module), [1118](#)
XMLFilterBase (class in `xml.sax.saxutils`), [1158](#)
XMLGenerator (class in `xml.sax.saxutils`), [1158](#)
XMLID() (in module `xml.etree.ElementTree`), [1127](#)
XMLNS_NAMESPACE (in module `xml.dom`), [1135](#)
XMLParser (class in `xml.etree.ElementTree`), [1132](#)
xml.parsers.expat (module), [1162](#)
xml.parsers.expat.errors (module), [1169](#)
xml.parsers.expat.model (module), [1169](#)
XMLParserType (in module `xml.parsers.expat`), [1163](#)
XMLPullParser (class in `xml.etree.ElementTree`), [1133](#)
XMLReader (class in `xml.sax.xmlreader`), [1159](#)
xmlrpclib.client (module), [1292](#)
xmlrpclib.server (module), [1300](#)
xml.sax (module), [1151](#)
xml.sax.handler (module), [1152](#)
xml.sax.saxutils (module), [1157](#)
xml.sax.xmlreader (module), [1158](#)
xor() (in module `operator`), [361](#)
xover() (`nntplib.NNTP` method), [1249](#)
xpath() (`nntplib.NNTP` method), [1249](#)
xrange (2to3 fixer), [1584](#)
xreadlines (2to3 fixer), [1584](#)
xview() (`tkinter.ttk.Treeview` method), [1429](#)

Y

Y2K, [601](#)
ycor() (in module `turtle`), [1367](#)
year (`datetime.date` attribute), [180](#)
year (`datetime.datetime` attribute), [185](#)
Year 2000, [601](#)
Year 2038, [600](#)
yeardatescalendar() (`calendar.Calendar` method), [207](#)
yeardays2calendar() (`calendar.Calendar` method), [207](#)
yeardayscalendar() (`calendar.Calendar` method), [207](#)

YESEXPR (in module `locale`), 1352
`YIELD_FROM` (opcode), 1813
`YIELD_VALUE` (opcode), 1813
`yiq_to_rgb()` (in module `colorsys`), 1333
`yview()` (`tkinter.ttk.Treeview` method), 1429

Z

Zen of Python, 1911
`ZeroDivisionError`, 92
`zfill()` (`bytearray` method), 65
`zfill()` (`bytes` method), 65
`zfill()` (`str` method), 51
`zip (2to3 fixer)`, 1584
`zip()` (built-in function), 24
`ZIP_BZIP2` (in module `zipfile`), 474
`ZIP_DEFLATED` (in module `zipfile`), 474
`zip_longest()` (in module `itertools`), 347
`ZIP_LZMA` (in module `zipfile`), 474
`ZIP_STORED` (in module `zipfile`), 474
`zipapp` (module), 1652
`zipapp` command line option
 `-c, --compress`, 1653
 `-h, --help`, 1653
 `--info`, 1653
 `-m <mainfn>, --main=<mainfn>`, 1653
 `-o <output>, --output=<output>`, 1652
 `-p <interpreter>, --python=<interpreter>`, 1653
`ZipFile` (class in `zipfile`), 475
`zipfile` (module), 474
`zipfile` command line option
 `-c <zipfile> <source1> ... <sourceN>`, 481
 `--create <zipfile> <source1> ... <sourceN>`, 481
 `-e <zipfile> <output_dir>`, 481
 `--extract <zipfile> <output_dir>`, 481
 `-l <zipfile>`, 481
 `--list <zipfile>`, 481
 `-t <zipfile>`, 481
 `--test <zipfile>`, 481
`zipimport` (module), 1751
`zipimporter` (class in `zipimport`), 1752
`ZipImportError`, 1751
`ZipInfo` (class in `zipfile`), 474
`zlib` (module), 459
`ZLIB_RUNTIME_VERSION` (in module `zlib`), 462
`ZLIB_VERSION` (in module `zlib`), 462