

Q1. 1. In the below elements which of them are values or an expression? eg:- values can be integer or string and expressions will be mathematical operators.

\* - Expression

'hello' - values

-87.8 - values

- - Expression

/- Expression

+- Expression

6 – values

Q2. What is the difference between string and variable?

String is a data type. We can extract letters/words from string but variable is something in which we store data. While denoting string we use " " but we don't need any such denotations for variables. A string can be stored in a variable.

Q3. Describe three different data types.

Text Type: str

Numeric Types: int, float, complex

Sequence Types: list, tuple, range

Mapping Type: dict

Set Types: set, frozenset

Boolean Type: bool

Binary Types: bytes, bytearray, memoryview

Text type data type includes string which stores all data in the form of text. We can perform operations on string and extract data from string. Data stored in string with the help of " "

Numeric datatype stores numerical values used to perform mathematical operations. These can be decimal values, floating point values or even complex numbers.

Sequence data type stores both integers as well as words/letter. We can extract different elements from list, unlike strings, lists can contain ordered sequences of any data type, even multiple different data types within the same list.

Q4. What is an expression made up of? What do all expressions do?

Expressions are representations of value. Python expressions are made up of identifiers, literals, and operators.

Identifiers: Any name that is used to define a class, function, variable module, or object is an identifier.

In Python, there are the string literals, byte literals, integer literals, floating point literals, and imaginary literals these are language-independent terms.

Operators are `+` `-` `*` `/` which are used to perform operations. Expressions combines values and operators and always evaluates down to a single value. Expressions are nothing but values, except they can have operations like addition or subtraction.

Q5. This assignment statements, like `spam = 10`. What is the difference between an expression and a statement?

Expressions represent something, like a number, a string, or an instance of a class. Any value is an expression! Anything that does something is a statement. Any assignment to a variable or function call is a statement. Any value contained in that statement in an expression. `A = "hello"` is a statement that assigns A to the value of the expression "hello". Statement is a Python instruction that does not evaluate down to a value, while expression does.

Q6. After running the following code, what does the variable bacon contain?

```
bacon = 22
```

```
bacon + 1
```

Variable bacon will contain 23

Q7. What should the values of the following two terms be?

`'spam' + 'spamspam' = 'spamspamspam'`

`'spam' * 3 = 'spamspamspam'`

Q8. Why is `eggs` a valid variable name while `100` is invalid?

Because a variable name should never start with integer so `100` is invalid but `eggs100` is valid.

Q9. What three functions can be used to get the integer, floating-point number, or string version of a value?

The `int()`, `float()`, and `str()` functions will evaluate to the integer, floating-point number, and string versions of the value passed to them

Q10. Why does this expression cause an error? How can you fix it? `'I have eaten' + 99 + ' burritos.'`

To fix I will put 99 in inverted commas `'99'`.