|  |  |  |
| --- | --- | --- |
| import | Import functions from external module |  |
| export | Export functions to external modules |  |
| new | Create instance of constructor |  |
| this | Refer to object it belongs to |  |
| Window | Browser Object Model | returns |
| alert | Display an alert dialog box  *message* – text to display | NONE |
| confirm | Display a confirmation dialog box  *message* – text to display | bool |
| prompt | Display a prompt dialog box  *text* – text to display  *default* – default text | string / null |
| print | Displays a print dialog box for current window | NONE |
| open | Open a new window  *url* – page to open  *name –* targetattribute or window name  *specs* – comma-separated list of items  fullscreen, height, left, location, menubar, width  resizable, scrollbars, status, titlebar, toolbar, top, | Object / null |
| close | Close current window | NONE |
| stop | Stop current window from loading | NONE |
| focus | Set focus to current window | NONE |
| blur | Remove focus from current window | NONE |
| moveTo | Move window to position  ***x, y*** – coordinates | NONE |
| moveBy | Move window to relative position  ***x, y*** – coordinates | NONE |
| resizeTo | Resize window to size  ***width***– in pixels  ***height***– in pixel | NONE |
| resizeBy | Resize window to relative size  ***width***– in pixels  ***height***– in pixel | NONE |
| scrollTo | Scroll window to position  ***x, y*** – coordinates | NONE |
| scrollBy | Scroll window to relative position  ***x, y*** – coordinates | NONE |
| addEventListener | Attach event handler to window  ***event*** – event type  ***function*** – function to call  *capture* – handler type: default = false | NONE |
| removeEventListener | Remove event handler  ***event*** – event type  ***function*** – function to remove  *capture* – handler type: default = false  \* if attached twice, must do separately | NONE |
| setTimeout | Create timer to execute function or expression  ***function*** – to execute  ***milliseconds***–time to wait  *params* – function parameters  \*use anon function to allow all browsers | num: timer id |
| clearTimeout | Clear a set timer  ***timerID*** – timer to clear | NONE |
| setInterval | Create interval to execute function or expression  ***function*** – to execute  ***milliseconds***–time to wait  *params* – function parameters  \*use anon function to allow all browsers | num: interval  id |
| clearInterval | Clear a set interval  ***intervalID*** – interval to clear | NONE |
| getComputedStyle | Inspect CSS property values of element  ***element*** – to inspect  *pseudoElement* – pseudo-class of element | Object |
| matchMedia | Query media rule features from CSS  ***query***– for media rule | Object |
| getSelection | Returns range of user-selected text | Object |
| requestAnimationFrame | Update animation before next repaint |  |
| atob | Decode a base64 encoded string  ***string***– to be decoded | string |
| btoa | Encode a string to base64  ***string*** – to be encoded | string |
| name | Sets/Gets Window Name | string |
| opener | Gets reference to opener window | Object |
| parent | Gets immediate parent of window | Object |
| top | Gets root parent of window | Object |
| closed | Gets if window has closed | bool |
| self | Gets current window | Object |
| navigator | Gets Window Navigator | Object |
| history | Gets Window History | Object |
| location | Gets Window Location | Object |
| screen | Gets Window Screen | Object |
| console | Gets Window Console | Object |
| document | Gets Window Document | Object |
| frames | Gets all running Window Objects | Array |
| frameElement | Gets frame window runs in | Object / null |
| length | Gets number of framed windows | num |
| outerHeight | Gets browser window height | num |
| outerWidth | Gets browser window width | num |
| innerHeight | Gets viewport height | num |
| innerWidth | Gets viewport width | num |
| screenLeft / screenX | Gets x-coordinate of window relative to screen | num |
| screenTop / screenY | Gets y-coordinate of window relative to screen | num |
| pageXOffset / scrollX | Gets pixels scrolled relative to upper-left corner | num |
| pageYOffset / scrollY | Gets pixels scrolled relative to upper-left corner | num |
| sessionStorage | Allows key/value pairs to be saved in a session | Object |
| localStorage | Allows key/value pairs to be saved locally | Object |
| Navigator | Document Browser |  |
| javaEnabled | Checks if Java is enabled | bool |
| appName | Return browser name  *\**returns Netscape for modern browsers | string |
| appCodeName | Return browser code name  \*returns Mozilla for modern browsers | string |
| product | Return browser engine / product name  *\**returns Gecko for modern browsers | string |
| userAgent | Return browser user-agent header | string |
| appVersion | Return browser version | string |
| platform | Return browser platform compiler | string |
| language | Return browser language | string |
| cookieEnabled | Return browser cookie toggle | bool |
| onLine | Return browser online status | bool |
| geolocation | Return browser Geolocation object | Object |
| Location | Document URL |  |
| assign | Load new document  ***url***– page to open | NONE |
| reload | Reload current document | NONE |
| replace | Replace current page, disables back navigation  ***url***– page to open | NONE |
| href | Gets/Sets URL | string |
| origin | Gets URL protocol, hostname, and port | string |
| protocol | Gets/Sets URL protocol | string |
| host | Gets/Sets URL host and port | string |
| hostname | Gets/Sets URL host | string |
| port | Gets/Sets URL port | string |
| pathname | Gets/Sets URL path | string |
| search | Gets/Sets URL parameters | string |
| hash | Gets/Sets URL anchor | string |
| History | Browser History |  |
| back | Load previous page | NONE |
| forward | Load next page | NONE |
| go | Go to a specific page  *number* – page to load | NONE |
| length | Gets number of URLs in history | num |
| Screen | Device Screen |  |
| height | Gets total height | num |
| width | Gets total width | num |
| availHeight | Gets available height | num |
| availWidth | Gets available width | num |
| colorDepth / pixelDepth | Gets color depth in bits per pixel | num |
| Console | Browser Console |  |
| log | Writes a message  ***message*** – to write | NONE |
| info | Write an informational message  ***message*** – to write | NONE |
| warn | Write a warning message  ***message*** – to write | NONE |
| error | Write an error message  ***message*** – to write | NONE |
| assert | Write an error message for false expressions  ***expression*** – to evaluate  ***message*** – to write | NONE |
| trace | Displays descending order of code executions  *label* – trace name | NONE |
| count | Counts the number of times count has been called  *label* – counter name | NONE |
| time | Starts a timer  *label* – timer name | NONE |
| timeEnd | Ends a timer  *label* – timer name | NONE |
| group | Start an indented message group  *label* – group name | NONE |
| groupCollapsed | Start an indented message group, collapsed  *label* – group name | NONE |
| groupEnd | Stop a message group  *label* – group name | NONE |
| table | Write a table  ***data*** – array of data  *columns* – array of column names | NONE |
| clear | Clear console | NONE |
| Storage | Browser Storage |  |
| setItem | Set stored item  ***key*** – item name  ***value*** – item value | string |
| getItem | Return stored item  ***key*** – item name | string |
| key | Return stored item at index  ***index*** – of item to get | string |
| removeItem | Delete stored item  ***key*** – item name | NONE |
| clear | Delete all items | NONE |
| length | Get number of items in Storage | num |
| Document | Document Object |  |
| getElementById | Return element with ID  ***id***– to find | Object / null |
| getElementByTagName | Returns element collection with tag name  ***tag*** – to find | Object |
| getElementByClassName | Returns element collection with class name  ***class*** – to find | Object |
| getElementByName | Returns element collection with name  ***name*** – to find | Object |
| querySelector | Returns first element with matching CSS  ***selector*** – to match | Object / null |
| querySelectorAll | Returns elements with matching CSS  ***selector*** – to match | Object / null |
| hasFocus | Checks if document has focus | bool |
| fullscreenEnabled | Checks if fullscreen mode is available | bool |
| open | Opens document for writing | NONE |
| write | Rewrites an open document  *expression, …* – output stream | NONE |
| writeIn | Rewrites an open document with newlines  *expression, …* – output stream | NONE |
| close | Close document from writing | NONE |
| createDocumentFragment | Create offscreen node | Node |
| createElement | Create element node  ***type*** – element tag name | Node |
| createTextNode | Create text node  ***text***– for the node | Node |
| createAttribute | Create attribute node  ***name*** - attribute | Node |
| createComment | Create comment node  ***text*** – for the node | Node |
| normalize | Remove empty text node and join adjacent ones | NONE |
| adoptNode | Takes and copies a node from another document  ***node*** – from another document | Node |
| importNode | Import nodes from another document  ***node*** – to import  *deep* – if true, import child nodes | Node |
| createEvent | Create Event object  ***type*** – of event | Object |
| addEventListener | Attach event handler to document  ***event*** – event type  ***function*** – function to call  *capture* – handler type: default = false | NONE |
| removeEventListener | Remove event handler  ***event*** – event type  ***function*** – function to remove  *capture* – handler type: default = false  \* if attached twice, must do separately | NONE |
| doctype | Gets document Doctype object | Object / null |
| documentElement | Gets document element | Object |
| head | Gets document head | Node |
| characterSet | Gets document character encoding | string |
| referrer | Gets loading document URL | string |
| baseURI | Gets base URI | string |
| body | Sets/Gets document body  *content* = to overwrite with | Object |
| images | Gets images collection | Object |
| forms | Gets forms collection | Object |
| links | Gets links collection | Object |
| embeds | Gets embedded collection | Object |
| scripts | Gets scripts collection | Object |
| activeElement | Gets focused element | Element |
| fullscreenElement | Gets fullscreened element | Element |
| designMode | Sets/Gets contentEditable attribute = on|off | string |
| defaultView | Gets Window Object | Object |
| domain | Gets document location domain | string / null |
| documentURI | Sets/Gets document location | Object / null |
| URL | Gets document full URL |  |
| lastModified | Gets document datetime last modified | string |
| readyState | Gets document loading status | string |
| implementation | Gets document DOM implementation | Object |
| cookie | Sets a cookie and Gets all cookies  *cookie* – expires, max-age, path, domain, secure | string |
| Element | HTML Element |  |
| getElementsByClassName | Return element collection with class  ***class*** – to find | Object |
| getElementsByTagName | Return element collection with tag  ***tag*** – to find | Object |
| querySelector | Return element first child with CSS selector  ***selector*** – to find | Element / null |
| querySelectorAll | Returns all element children with CSS selector  ***selector*** – to find | Object |
| focus | Gives element focus | NONE |
| blur | Remove element focus | NONE |
| requestFullscreen | Gives element fullscreen | NONE |
| exitFullscreen | Remove element fullscreen |  |
| matches | Check if element matches CSS selector  ***selector*** – to match | bool |
| closest | Searches up for closest CSS selector  ***selector*** – to find | Object / null |
| getBoundingClientRect | Returns element size and position relative to viewport | Object |
| click | Simulate click event | NONE |
| addEventListener | Attach event handler to element  ***event*** – event type  ***function*** – function to call  *capture* – handler type: default = false | NONE |
| removeEventListener | Remove event handler  ***event*** – event type  ***function*** – function to remove  *capture* – handler type: default = false  \* if attached twice, must do separately | NONE |
| scrollIntoView | Scrolls element to visible area  *align* – if true, align visible area top; false: bottom | NONE |
| isDefaultNamespace | Check if element namespace is default  ***URI*** – to check | bool |
| hasAttribute | Checks if element has attribute  ***attribute*** – to check | bool |
| hasAttributes | Check if element has attributes | bool |
| setAttribute | Assign attribute value  ***attribute*** - name  ***value*** – of attribute | NONE |
| getAttribute | Return element attribute  ***name*** – of attribute | string / null |
| removeAttribute | Remove element attribute  ***attribute*** – to delete | NONE |
| insertAdjacentElement | Insert element into a position  ***position*** – afterbegin, afterend, beforebegin, beforeend  ***element*** – to insert | NONE |
| insertAdjacentHTML | Insert HTML code at position  ***position*** – afterbegin, afterend, beforebegin, beforeend  ***element*** – to insert | NONE |
| insertAdjacentText | Insert text at position  ***position*** – afterbegin, afterend, beforebegin, beforeend  ***element*** – to insert | NONE |
| remove | Remove element or node | NONE |
| contains | Checks if node is a descendant of another  ***node*** – to check | bool |
| hasChildNodes | Check if element has child nodes | bool |
| appendChild | Appends node to element  *node* – to append | Node |
| insertBefore | Insert child node before existing child  ***node*** – to insert  ***child*** – that exists | Node |
| cloneNode | Copies a Node  *deep* – if true, copies child nodes | Node |
| removeChild | Remove element child  ***node*** – to delete | Node / null |
| replaceChild | Replace element child with new node  ***new*** – to insert  ***old*** – to remove | Node |
| setAttributeNode | Replace element attribute nodes  ***node*** – to add | Object |
| getAttributeNode | Return element attribute node  ***name*** – of attribute | Object / null |
| removeAttributeNode | Remove element attribute node  ***node*** – to delete | Object |
| isEqualNode | Check if two nodes are equal  ***node*** – to compare | bool |
| isSameNode | Check if two nodes are the same  ***node*** – to compare | bool |
| compareDocument  Position | Compares node position  ***node***– to compare | num |
| normalize | Remove empty text node and join adjacent ones | NONE |
| attributes | Gets attribute collection | Object |
| id | Sets/Gets element id | string |
| className | Sets/Gets element class | string |
| classList | Gets CSS classnames | Object |
| style | Gets element style attribute value | Object |
| title | Sets/Gets title attribute | string |
| lang | Sets/Gets lang attribute | string |
| dir | Sets/Gets dir attribute | string |
| tabIndex | Sets/Gets tabindex attribute | num |
| accessKey | Sets/Gets accesskey attribute | string |
| contentEditable | Sets/Gets contenteditable attribute | string |
| isContentEditable | Checks if contenteditable is set | bool |
| offsetParent | Gets element nearest ancestor | Node / null |
| parentElement | Gets element parent element | Element |
| previousElementSibling | Gets previous sibling element | Element / null |
| nextElementSibling | Gets next sibling element | Element / null |
| children | Gets child collection | Object |
| firstElementChild | Gets element first child element node | Node / null |
| lastElementChild | Gets element last child element node | Node / null |
| parentNode | Gets element or node parent node | Node |
| previousSibling | Gets previous sibling node | Node / null |
| nextSibling | Gets next sibling node | Node / null |
| childNodes | Gets child node collection | Object |
| firstChild | Gets node first child node | Node / null |
| lastChild | Gets node last child node | Node |
| childElementCount | Gets number of child elements | num |
| nodeName | Gets node name | string |
| nodeType | Gets node type | num |
| nodeValue | Sets/Gets node value | string / null |
| ownerDocument | Gets node owner document | Object |
| namespaceURI | Gets element namespace URI | string / null |
| tagName | Gets element tag name in uppercase | string |
| textContent | Sets/Gets node and its children text | string |
| innerHTML | Sets/Gets element HTML content | string |
| innerText | Sets/Gets element text content | string |
| outerHTML | Sets/Gets element HTML code | string |
| outerText | Sets/Gets node text | string |
| clientHeight | Gets element visible height, including padding | num |
| clientWidth | Gets element visible width, including padding | num |
| scrollHeight | Gets element height including padding | num |
| scrollWidth | Gets element width including padding | num |
| offsetHeight | Gets element visible height, excluding margin | num |
| offsetWidth | Gets element visible width, excluding margin | num |
| clientLeft | Gets element left border width | num |
| clientTop | Gets element top border width | num |
| scrollLeft | Sets/Gets element horizontal scroll displacement | num |
| scrollTop | Sets/Gets element vertical scroll displacement | num |
| offsetLeft | Gets element left position | num |
| offsetTop | Gets element top position | num |
| Attribute | Element Attribute; NamedNodeMap |  |
| length | Return number of attributes | num |
| item | Return attribute by index  ***index*** – to find | Node / null |
| getNamedItem | Return attribute by name  ***name*** – to find | Node |
| setNamedItem | Add/Replace attribute node  ***node*** – to add | Node / null |
| removeNamedItem | Remove attribute node  ***node*** – to delete | Node |
| name | Gets attribute name | string |
| value | Sets/Gets attribute value | string |
| specified | Checks if attribute specified; false: error | bool |
| Style | Element Style |  |
| display | Sets/Gets display | string |
| visibility | Sets/Gets visibility | string |
| opacity | Sets/Gets opacity | string |
| filter | Sets/Gets filter | string |
| position | Sets/Gets position | string |
| top | Sets/Gets top | string |
| right | Sets/Gets right | string |
| bottom | Sets/Gets bottom | string |
| left | Sets/Gets left | string |
| zIndex | Sets/Gets z-index | string |
| clip | Sets/Gets clip-path | string |
| overflow | Sets/Gets overflow  \*includes X, Y | string |
| cssFloat | Sets/Gets float | string |
| clear | Sets/Gets clear | string |
| boxSizing | Sets/Gets box-sizing | string |
| boxShadow | Sets/Gets box-shadow | string |
| boxDecorationBreak | Sets/Gets box-decoration-break | string |
| flex | Sets/Gets flex  \*includes Grow, Shrink, Basis | string |
| flexFlow | Sets/Gets flex-flow  \*includes flexDirection, flexWrap | string |
| order | Sets/Gets order | string |
| justifyContent | Sets/Gets justify-content | string |
| alignItems | Sets/Gets align-items | string |
| alignContent | Sets/Gets align-content | string |
| alignSelf | Sets/Gets align-self | string |
| background | Sets/Gets background  \*includes Color, Image, Position, Size, Repeat, Origin, Clip, Attachment | string |
| isolation | Sets/Gets isolation | string |
| outline | Sets/Gets outline  \*includes Width, Style Color Offset | string |
| margin | Sets/Gets margin  \*includes top, right, bottom, left | string |
| border | Sets/Gets border  \*includes Top, Right, Bottom, Left  \*includes Width, Style, Color, {Corner}Radius | string |
| borderImage | Sets/Gets border-image  \*includes Source, Slice, Width, Outset, Repeat | string |
| padding | Sets/Gets padding  \*includes top, right, bottom, left | string |
| height | Sets/Gets height  \*includes min, max | string |
| width | Sets/Gets width  \*includes min, max | string |
| color | Sets/Gets color | string |
| verticalAlign | Sets/Gets vertical-align | string |
| textAlign | Sets/Gets text-align | string |
| textAlignLast | Sets/Gets text-align-last | string |
| direction | Sets/Gets direction | string |
| unicodeBidi | Sets/Gets unicode-bidi | string |
| textDecoration | Sets/Gets text-decoration  \*includes Line, Color, Style | string |
| textTransform | Sets/Gets text-transform | string |
| textIndent | Sets/Gets text-indent | string |
| textShadow | Sets/Gets text-shadow | string |
| textJustify | Sets/Gets text-justify | string |
| textOverflow | Sets/Gets text-overflow | string |
| lineHeight | Sets/Gets line-height | string |
| whiteSpace | Sets/Gets white-space | string |
| letterSpacing | Sets/Gets letter-spacing | string |
| wordSpacing | Sets/Gets word-spacing | string |
| wordBreak | Sets/Gets word-break | string |
| wordWrap | Sets/Gets word-wrap | string |
| userSelect | Sets/Gets user-select | string |
| font | Sets/Gets font  \*includes Style, Variant, Weight, Size, Family, SizeAdjust, Stretch | string |
| content | Sets/Gets content | string |
| resize | Sets/Gets resize | string |
| listStyle | Sets/Gets list-style  \*includes Type, Position, Image | string |
| hangingPunctuation | Sets/Gets hanging-punctuation | string |
| hyphens | Sets/Gets hyphens | string |
| quotes | Sets/Gets quotes | string |
| counterReset | Sets/Gets counter-reset | string |
| counterIncrement | Sets/Gets counter-increment | string |
| columns | Sets/Gets columns  \*includes Width, Count, Span, Fill, Gap | string |
| columnRule | Sets/Gets column-rule  \*includes Width, Style, Color | string |
| borderCollapse | Sets/Gets border-collapse | string |
| borderSpacing | Sets/Gets border-spacing | string |
| tableLayout | Sets/Gets table-layout | string |
| captionSide | Sets/Gets caption-side | string |
| emptyCells | Sets/Gets empty-cells | string |
| transform | Sets/Gets transform | string |
| transformOrigin | Sets/Gets transform-origin | string |
| transformStyle | Sets/Gets transform-style | string |
| perspective | Sets/Gets perspective  \*includes Origin |  |
| backfaceVisibility | Sets/Gets backface-visibility | string |
| transition | Sets/Gets transition  \*includes Property, Duration, TimingFunction, Delay | string |
| animation | Sets/Gets animation  \*includes Name, Duration, TimingFunction, Delay, IterationCount, Direction, FillMode, PlayState | string |
| imageOrientation | Sets/Gets image-orientation |  |
| objectFit | Sets/Gets object-fit | string |
| objectPosition | Sets/Gets object-position | string |
| caretColor | Sets/Gets caret-color | string |
| cursor | Sets/Gets cursor | string |
| tabSize | Sets/Gets tab-size | string |
| pageBreakBefore | Sets/Gets page-break-before | string |
| pageBreakInside | Sets/Gets page-break-inside | string |
| pageBreakAfter | Sets/Gets page-break-after | string |
| orphans | Sets/Gets orphans | string |
| widows | Sets/Gets widows | string |
| scrollBehavior | Sets/Gets scroll-behavior | string |
| Events | Element Event Listener |  |
| focusin | Element focused |  |
| focusout | Element blurred |  |
| fullscreenchange | Element fullscreened |  |
| fullscreenerror | Element cannot be fullscreened |  |
| mouseenter | Mouse pointer enters element |  |
| mouseleave | Mouse pointer leaves element |  |
| touchstart | Touch pointer pressed |  |
| touchmove | Touch pointer moved |  |
| touchend | Touch pointer released |  |
| touchcancel | Touch interrupted |  |
| animationStart | Animation started |  |
| animationIteration | Animation repeated |  |
| animationEnd | Animation ended |  |
| transitionend | CSS transition completed |  |
| open | Event source connection opened |  |
| show | <menu> shown as context menu |  |
| preventDefault | Cancel event, if possible | NONE |
| stopPropagation | Stop event parent propagation | NONE |
| stopImmediatePropagation | Stop all event propagation | NONE |
| composedPath | Return event path | Array |
| type | Get event type | string |
| isTrusted | Check if user-invoked event, or script | bool |
| cancelable | Check if event is cancellable | bool |
| defaultPrevented | Checks if preventDefault was called | bool |
| bubbles | Check if event bubbles up | bool |
| composed | Check if event propagate across shadow DOM | bool |
| target | Get event where event occurred | Object |
| currentTarget | Get element with triggered event listener | Object |
| timeStamp | Get time event triggered since document loaded | num |
| eventPhase | Gets event flow current phase | num |
| Global | JavaScript Globals (Window) |  |
| Infinity | Represent infinity |  |
| NaN | Represent non-legal number |  |
| undefined | Represent unassigned/undeclared value |  |
| decodeURI | Decode URI  ***uri*** – to decode | string |
| decodeURIComponent | Decode URI component  ***uri*** – to decode | string |
| encodeURI | Encode URI  ***uri*** – to encode | string |
| encodeURIComponent | Encode URI Component with special characters  ***uri*** – to encode | string |
| String | Convert value to string  ***value*** – to convert | string |
| Number | Convert value to number  *value*– to convert | num / NaN |
| parseInt | Get first integer parsed in string  ***string*** – to parse  *radix* – number system | num / NaN |
| parseFloat | Get first number parsed in string  ***string*** – to parse | num |
| isFinite | Check if value is finite  ***value*** – to check | bool |
| isNaN | Check if value is not a number  ***value*** – to check | bool |
| eval | Execute/Evaluate an argument (DO NOT USE)  ***expression*** – to execute | --- |
| Error | JavaScript Errors |  |
| SyntaxError | Code syntax error |  |
| TypeError | Variable type error |  |
| ReferenceError | Illegal reference |  |
| RangeError | Number out of range |  |
| URIError | encodeURI() error |  |
| name | Gets error name | string |
| message | Sets/Gets error message | string |
| Statements | JavaScript Instructions |  |
| var | Declare variable in global scope |  |
| let | Declare variable in block scope |  |
| const | Declare variable with constant reference |  |
| function | Declare function |  |
| return | Stop function and return value |  |
| class | Declare object template |  |
| for | Declare for loop |  |
| for … of | Iterate group values |  |
| for … in | Iterate object properties |  |
| while | Declare while loop |  |
| do … while | Declare while loop that runs at least once |  |
| if … else | Declare conditional statement |  |
| switch | Declare switch statement |  |
| break | Break loop |  |
| continue | Break one iteration and continue to rest |  |
| try … catch … finally | Declare error handling |  |
| throw | Create custom error |  |
| debugger | Stop JavaScript execution and call debugger |  |
| Operator | Javascript Operators |  |
| Arithmetic | Add (+), Sub (-), Mult (\*), Div (/), Mod (%), Exp(\*\*), Incr (++), Decr (--) |  |
| Assignment | =, +=, -=, \*=, /=, %=, : |  |
| Comparison | ==, ===, !=, !==, >, <, >=, <= |  |
| Conditional / Ternary | *cond* ? *x* : *y* |  |
| Logical | &&, ||, ! |  |
| Bitwise | AND (&), OR (|), Not (~), XOR (^), Left shift (<<), Right shift, (>>), Unsigned Right Shift (>>>) |  |
| Nullish Coalescing (??) | Return x if true, y if false (*x* ?? *y*) |  |
| Optional Chaining (?.) | Return undefined if nullish object |  |
| typeof | Return type of variable, object, function |  |
| delete | Delete property from object |  |
| spread (…) | Expand iterable into more elements |  |
| in | Check if property is in object | bool |
| instanceOf | Check if object is instance of an object | bool |
| void | Evaluate and return undefined |  |
| yield | Pause/Resume generator function |  |
| Boolean | JavaScript Boolean Object |  |
| valueOf | Return primitive value | bool |
| toString | Converts to string | string |
| constructor | Gets function that created prototype | Object |
| prototype | Allows new properties and methods | X USE |
| Number | JavaScript Number Object |  |
| MIN\_VALUE | Smallest possible number (5e-324) |  |
| MAX\_VALUE | Largest possible number (1.7976931348623157e+308) |  |
| MIN\_SAFE\_INTEGER | Smallest safe integer  (-(2e53 - 1) = -9007199254740991) |  |
| MAX\_SAFE\_INTEGER | Largest safe integer  (2e53 – 1 = 9007199254740991) |  |
| EPSILON | 1 minus smallest floating point number > 1 (2.220446049250313e-16) |  |
| NEGATIVE\_INFINITY | Negative Infinity |  |
| POSITIVE\_INFINITY | Positive Infinity |  |
| NaN | Not a Number |  |
| isInteger | Checks if number is integer  ***value*** – to check | bool |
| isSafeInteger | Checks if number is safe integer  ***value*** – to check | bool |
| isFinite | Checks if number is not NaN or Infinite  ***value*** – to check | bool |
| isNaN | Checks if number is NaN  ***value*** – to check | bool |
| parseInt | Get first integer parsed in string  ***string*** – to parse  *radix* – number system | num / NaN |
| parseFloat | Get first number parsed in string  ***string*** – to parse | num |
| toFixed | Format number with rounded decimal  *number* – of decimal places | string |
| toPrecision | Format number to length  *number* – of digits | string |
| toExponential | Format number to exponential notation  *number* – of digits | string |
| toString | Convert number to string  *radix* – number system | string |
| toLocaleString | Format to string with local language  *locale* – language to format  *option* – currency, currencyDisplay, style localeMatcher, maximumFractionDigits, maximumSignificantDigits, useGrouping, minimumFractionDigits, minimumIntegerDigits, minimumSignificantDigits | string |
| valueOf | Return primitive value | number |
| constructor | Gets function that created prototype | Object |
| prototype | Allows new properties and methods | X USE |
| String | JavaScript String Object |  |
| concat | Join strings together  ***strings*** – to join | string |
| repeat | Repeat string a number of times  ***number*** – of times to repeat | string |
| split | Split string into substrings  *separator* – string/regex to use  *limit* – number of splits | Array |
| slice | Extract substring  ***start*** - position  *end* – position | string |
| substr | Extract substring from index  ***start*** – position  *length* – number of characters | string |
| substring | Extract substring from indices  ***start*** - position  *end* – position | string |
| replace | Replace a substring in string  ***value*** – regex or string to find  ***new*** – value to replace with | string |
| replaceAll | Replace all substring in string  ***value*** – regex or string to find  ***new*** – value to replace with | string |
| trim | Remove whitespace around string | string |
| trimStart | Remove whitespace at string start | string |
| trimEnd | Remove whitespace at string end | string |
| match | Match against a regular expression  ***regex*** – to match | Array / null |
| search | Return index of first match of regex  ***regex*** – to search (string converted to regex) | num |
| indexOf | Return index of first instance of substring  ***value*** – to search for  *start* – position | num |
| lastIndexOf | Return index of last instance of substring  ***value*** – to search for  *start* – position | num |
| localeCompare | Compare two strings in current locale  ***string*** – to compare | num |
| includes | Check if string contains substrings  ***value*** – to search for  *start* – position | bool |
| startsWith | Checks if string starts with substring  ***value*** – to search for  *start* – position | bool |
| endsWith | Check if string ends in substring  ***value*** – to search for  *length* – of string to search | bool |
| charAt | Return character at index  ***index*** – to check | string |
| charCodeAt | Return character UTF-16 Unicode at index  ***index*** – to check | num |
| codePointAt | Return character Unicode at index  ***index*** – to check | num |
| fromCharCode | Convert Unicode to character  ***codes*** – to convert | string |
| toLowerCase | Format string to all lowercase | string |
| toUpperCase | Format string to all uppercase | string |
| toLocaleLowerCase | Format string to all lowercase in current locale | string |
| toLocaleUpperCase | Format string to all uppercase in current locale | string |
| toString | Format string to string | string |
| valueOf | Return primitive value | string |
| length | Get length of string | num |
| constructor | Gets function that created prototype | Object |
| prototype | Allows new properties and methods | X USE |
| RegExp | JavaScript Regular Expressions /pattern/mod |  |
| g | Modifier to find all matches |  |
| i | Modifier to find case-insensitive matches |  |
| m | Modifier to find multiline matches |  |
| [*alpha*] | Find characters between brackets |  |
| [*digit*] | Find digits between brackets |  |
| [^*item*] | Find item not between brackets |  |
| (x|y) | Find alternatives specified |  |
| . | Find single character except newline or line terminator |  |
| \W \w | Find (non) word character |  |
| \D \d | Find (non) digit character |  |
| \S \s | Find (non) whitespace character |  |
| \B \b | Find match (not) at beginning/end of word |  |
| \0 | Find NULL character |  |
| \n | Find newline character |  |
| \f | Find form feed character |  |
| \r | Find carriage return character |  |
| \t | Find tab character |  |
| \v | Find vertical tab character |  |
| \xxx | Find octal character matching code |  |
| \xdd | Find hexadecimal character matching code |  |
| \udddd | Find Unicode character matching hexadecimal |  |
| n+ | Match string with at least one *n* |  |
| n\* | Match string with zero or more *n* |  |
| n? | Match string with zero or one *n* |  |
| n{X} | Match string with sequence of *X* *n*’s |  |
| n{X,Y} | Match string with sequence of *X* to *Y n*’s |  |
| n{X,} | Match string with sequence of at least *X n*’s |  |
| n$ | Match string with *n* at the end |  |
| ^n | Match string with *n* at the beginning |  |
| ?=n | Match string followed by *n* |  |
| ?!n | Match string not followed by *n* |  |
| exec | Find match for string  ***string*** – to search | Array |
| test | Check for a match in a string  ***string*** – to search | bool |
| toString | Format RegExp as string | string |
| source | Get RegExp pattern | string |
| global | Get if global modifer is set | bool |
| ignoreCase | Get if case modifier is set | bool |
| multiline | Get if multiline modifier is set | bool |
| lastIndex | Get index of character after last match | num |
| constructor | Gets function that created prototype | Object |
| Array | JavaScript Array Object |  |
| isArray | Checks if object is array  ***object*** – to check | bool |
| concat | Join two arrays  ***arrays*** – to join | Array |
| flat | Join sub-array elements  *depth* – nested array should be flattened | Array |
| flatMap | Map array elements into flat array  ***function*** – to run  ***currentValue***, *index*, *array*  *thisValue* – passed to the function | Array |
| from | Return array made from object  ***object*** – to convert  *map* – function for elements  *thisVal* – for map function | Array |
| keys | Return array keys | Object |
| entries | Return array key/value pairs | Object |
| at | Return element at index  *index* – of element | value |
| indexOf | Return index of first instance of value  ***value*** – to find  *start* - position | num |
| find | Return first matching element  ***function*** – to run  ***currentValue***, *index*, *array*  *thisValue* – passed to the function | value |
| findIndex | Return first matching element index  ***function*** – to run  ***currentValue***, *index*, *array*  *thisValue* – passed to the function | num |
| lastIndexOf | Return index of last instance of value  ***value*** – to find  *start* – position | num |
| every | Checks if every element returns true  ***function*** – to run  ***currentValue***, *index*, *array*  *thisValue* – passed to the function | bool |
| some | Check if any element returns true  ***function*** – to run  ***currentValue***, *index*, *array*  *thisValue* – passed to the function | bool |
| includes | Check if array contains a value  ***value*** – to find  *start* – position | bool |
| unshift | Add element to beginning of array  ***elements*** – to add | num |
| shift | Remove first element | value |
| push | Add element to end of array  ***element*** – to add | num |
| pop | Remove last element | value |
| splice | Add and remove elements  ***index*** – to start  *num* – of elements to remove  *elements* – to add | Array |
| slice | Extract elements from array  *start* - position  *end* – position | Array |
| sort | Overwrite element order to ascending  *function – to define order* | Array |
| reverse | Overwrite element order in reverse | Array |
| reduce | Call a reducer function for elements  ***function*** – to run  ***total, currentValue***, *currentindex*, *array*  *value* – initial | value |
| reduceRight | Call a reducer function for elements right to left  ***function*** – to run  ***total, currentValue***, *currentindex*, *array*  *value* – initial | value |
| forEach | Call function for each element  ***function*** – to run  ***currentValue***, *index*, *array*  *thisValue* – passed to the function | undefi-  ned |
| map | Apply element to function into new array  ***function*** – to run  ***currentValue***, *index*, *array*  *thisValue* – passed to the function | Array |
| copyWithin | Copy elements to another position  ***target*** – index to copy to  *start* – position  *end* – position | Array |
| fill | Overwrite elements with value  ***value*** – to fill  *start* - position  *end* – position | Array |
| filter | Filter elements into new array  ***function*** – to run  ***currentValue***, *index*, *array*  *thisValue* – passed to the function | Array |
| join | Convert array to string  *separator* – to use | string |
| toString | Format array to string | string |
| valueOf | Return primitive value | Array |
| length | Get length of array | num |
| constructor | Gets function that created prototype | Object |
| prototype | Allows new properties and methods | X USE |
| Typed Array | JavaScript Binary Data Buffer |  |
| Int8Array | Signed integer (byte) -127/128 |  |
| Int16Array | Short integer -32768/32767 |  |
| Int32Array | Signed long integer -2e31/2e31-1 |  |
| Uint8Array | Unsigned integer (octet) 0/255 |  |
| Uint8ClampedArray | Unsigned integer (octet), defaulting 0 or 255  0/255 |  |
| Uint16Array | Unsigned short integer 0/65535 |  |
| Uint32Array | Unsigned long integer 0/2e32 |  |
| Float32Array | Float (7 significant figures)  1.2x10e-38 / 3.4x10e38 |  |
| Float64Array | Double (14 significant figures)  5x10e-324 / 1.8x10e308 |  |
| BigInt64Array | Big signed integer -2e63 / 2e63 – 1 |  |
| BigUint64Array | Big unsigned integer 0 / 2e64 |  |
| of | Create from array  *array* – to use | Object |
| fill | Overwrite elements with value  ***value*** – to fill  *start* - position  *end* – position | Object |
| find | Return first matching element  ***function*** – to run  ***currentValue***, *index*, *array*  *thisValue* – passed to the function | value |
| some | Check if any element returns true  ***function*** – to run  ***currentValue***, *index*, *array*  *thisValue* – passed to the function | bool |
| constructor.name | Get typed array name | string |
| BYTES\_PER\_ELEMENT | Get number of bytes used to store element | num |
| Date | JavaScript Date Object |  |
| .now | Return milliseconds since January 1, 1970 | num |
| getTime | Return time between origin and date | num |
| .UTC | Return time between origin and date in UTC  ***year***, ***month***  *day*, *hour*, *minute*, *second*, *millisecond* | num |
| setTime | Assign date based on millisconds since origin  ***milliseconds*** | num |
| parse | Convert string into milliseconds since origin  ***string*** – to convert | num |
| getTimezoneOffset | Return local time difference from UTC | num |
| getFullYear | Return year | num |
| getMonth | Return month of the year | num |
| getDate | Return day of the month | num |
| getHours | Return hour | num |
| getMinutes | Return minute | num |
| getSeconds | Return seconds | num |
| getMilliseconds | Return millisecond | num |
| getDay | Return day of the week | num |
| getUTCFullYear | Return year in UTC | num |
| getUTCMonth | Return month of the year in UTC | num |
| getUTCDate | Return day of the month in UTC | num |
| getUTCHours | Return hour in UTC | num |
| getUTCMinutes | Return minute in UTC | num |
| getUTCSeconds | Return seconds in UTC | num |
| getUTCMilliseconds | Return millisecond in UTC | num |
| getUTCDate | Return day of the week in UTC | num |
| setFullYear | Assign year  ***year***, *month*, *day* | num |
| setMonth | Assign month of the year  ***month***, *day* | num |
| setDate | Assign day of the month  ***day*** | num |
| setHours | Assign hour  ***hour***, *minute*, *second,* *millisecond* | num |
| setMinutes | Assign minute  ***minute***, *second,* *millisecond* | num |
| setSeconds | Assign seconds  ***second****,* *millisecond* | num |
| setMilliseconds | Assign millisecond  ***millisecond*** | num |
| setUTCFullYear | Assign year in UTC  ***year***, *month*, *day* | num |
| setUTCMonth | Assign month of the year in UTC  ***month***, *day* | num |
| setUTCDate | Assign day of the month in UTC  ***Day*** | num |
| setUTCHours | Assign hour in UTC  ***hour***, *minute*, *second,* *millisecond* | num |
| setUTCMinutes | Assign minute in UTC  ***minute***, *second,* *millisecond* | num |
| setUTCSeconds | Assign seconds in UTC  ***second****,* *millisecond* | num |
| setUTCMilliseconds | Assign year in UTC  ***year***, *month*, *day* | num |
| toDateString | Convert date portion to string | string |
| toTimeString | Convert time portion to string | string |
| toString | Convert to string | string |
| toLocaleDateString | Convert date portion to string in locale | string |
| toLocaleTimeString | Convert time portion to string in locale | string |
| toLocaleString | Convert to string in locale  *locale* – to format  *options* – dateStyle, timeStyle, localeMatcher, timeZone, hour12, hourCycle, formatMatcher, weekday, year, month, day, hour, minute, second, timeZoneName | string |
| toUTCString | Convert to string in UTC | string |
| toISOString | Convert to string in ISO | string |
| toJSON | Convert to string in JSON | string |
| valueOf | Return primitive value | Date |
| constructor | Gets function that created prototype | Object |
| prototype | Allows new properties and methods | X USE |
| Object | JavaScript Objects |  |
| .keys | Return keys  ***object*** – to search | Array |
| toString | Format object as string | string |
| valueOf | Return primitive value | Object |
| constructor | Gets function that created prototype | Object |
| prototype | Allows new properties and methods | X USE |
| JSON | JavaScript Object Notation {key:value} |  |
| parse | Parse string into Object  ***string*** – to parse  *function* – reviver to transform result | Object |
| stringify | Format Object into JSON string  ***object*** – to format  *replacer* – function or array to transform result  *space­* – string or number for number of whitespace characters | string |
| Class | JavaScript Classes |  |
| extends | Inherit a class |  |
| super | Refer to parent class |  |
| static | Define static method |  |
| constructor | Method to create and initialize objects |  |
| Math | JavaScript Mathematical Tasks |  |
| PI | Pi (3.14) |  |
| SQRT1\_2 | Square root of 1/2 (0.707) |  |
| SQRT2 | Square root of 2 (1.414) |  |
| E | Eulers number (2.718) |  |
| LOG2E | Base-2 log of E (1.442) |  |
| LOG10E | Base-10 log of E (0.434) |  |
| LN2 | Natural log of 2 (0.693) |  |
| LN10 | Natural log of 10 (2.302) |  |
| random | Return random number from [0,1) | num |
| min | Return minimum in x1, x2, …, xN | num |
| max | Return maximum in x1, x2, …, xN | num |
| trunc | Return integer of x | num |
| round | Return rounded off value of x | num |
| fround | Return nearest 32-bit single-precision float of x | num |
| ceil | Return rounded up value of x | num |
| floor | Return rounded down value of x | num |
| sign | Return sign of x | num |
| abs | Return absolute value of x | num |
| sin | Return sine of radian x | num |
| sinh | Return hyperbolic sine of x | num |
| asin | Return arcsine in radians of x | num |
| asinh | Return hyperbolic arcsine of x | num |
| cos | Return cosine of radian x | num |
| cosh | Return hyperbolic cosine of x | num |
| acos | Return arccosine in radians of x | num |
| acosh | Return hyperbolic arccosine of x | num |
| tan | Return tangent of radian x | num |
| tanh | Return hyperbolic tangent of x | num |
| atan | Return arctangent in radians of x | num |
| atanh | Return hyperbolic arctangent of x | num |
| atan2 | Return arctangent of quotient of (x,y) | num |
| sqrt | Return square root of x | num |
| cbrt | Return Cubic root of x | num |
| pow | Return value of x to the power of y | num |
| exp | Return value of E^x | num |
| expm1 | Return value of E^x - 1 | num |
| log | Return natural log of x | num |
| log2 | Return base-2 log of x | num |
| log10 | Return base-10 log of x | num |
| log1p | Return value of natural log of 1 plus x | num |
| clz32 | Return count of leading zeros of 32-bit x | num |
| Geolocation | JavaScript Geolocation API |  |
| getCurrentPosition | Return current device location |  |
| watchPosition | Set a watcher and return watchID |  |
| clearWatch | Unregister watchPosition watchID |  |
| coordinates | Get device position and altitude |  |
| position | Get device position |  |
| positionError | Get device geolocation error |  |
| positionOptions | Set geolocation properties |  |
| HTMLCollection | Array-like live collection of HTML elements |  |
| item | Return element at index  ***index*** – to view | Element |
| namedItem | Return element with name or id  ***value*** – name or id of element | Element |
| length | Get element count | num |
| NodeList | Array-like static collection of Nodes |  |
| entries | Return key/value pairs | Object |
| keys | Return keys | Object |
| values | Return values | Object |
| item | Return node at index  ***index*** – to view | Node |
| forEach | Execute callback function for each node  ***function*** – to run  ***currentValue***, *index*, *array*  *thisValue* – passed to the function | NONE |
| length | Get node count | Num |
| MediaQueryList | Media Device Query information |  |
| addListener | Create event handler when media query result changes | NONE |
| removeListener | Remove event handler from media query | NONE |
| media | Get media query list | string |
| matches | Check if document matches query | bool |
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| UIEvent | onload, onabort, onerror, onbeforeunload, onunload, onresize, onscroll, onselect  \*inherited by Input, Keyboard, Mouse, Wheel, Touch, and FocusEvent |  |
| detail | Get event details, usually click count | num |
| view | Get event Window object | Object |
| InputEvent | oninput |  |
| getTargetRanges | Return target ranges affected by input | Array |
| inputType | Return insertion or deletion | string |
| data | Return inserted characters | string |
| dataTransfer | Return inserted data information | Object |
| isComposing | Check if event is in composing state | bool |
| KeyboardEvent | onkeypress, onkeydown, onkeyup |  |
| key | Get key | string |
| code | Get key code | string |
| location | Get key location | num |
| repeat | Check if key is held down | bool |
| shiftKey | Checks if Shift was pressed | bool |
| ctrlKey | Checks if Ctrl was pressed | bool |
| altKey | Checks if Alt was pressed | bool |
| metaKey | Checks if Meta was pressed | bool |
| isComposing | Check if event is in composing state | bool |
| MouseEvent | onclick, ondblclick, onmousedown, onmouseup, onmouseenter, onmouseleave, onmousemove, onmouseout, onmouseover, oncontextmenu |  |
| region | Get canvas hit region id | string |
| relatedTarget | Get triggering element | Element |
| button | Get button pressed | num |
| buttons | Get buttons pressed | num |
| shiftKey | Checks if Shift was pressed | bool |
| ctrlKey | Checks if Ctrl was pressed | bool |
| altKey | Checks if Alt was pressed | bool |
| metaKey | Checks if Meta was pressed | bool |
| screenX, screenY | Get screen coordinate | num |
| clientX, clientY | Get window client coordinate | num |
| pageX, pageY | Get document relative coordinate | num |
| offsetX, offsetY | Get element relative coordinate | num |
| movementX, movementY | Get relative coordinate from last mousemove | num |
| WheelEvent | onwheel  \*inherits MouseEvent |  |
| deltaMode | Get measurement unit | num |
| deltaX, deltaY, deltaZ | Get scroll direction | Double |
| TouchEvent | ontouchstart, ontouchmove, ontouchmove, ontouchcancel |  |
| touches | Get each finger Touch | Array |
| targetTouches | Get each currently touching finger Touch | Array |
| changedTouches | Get each finger Touch that has changed since last event | Array |
| shiftKey | Checks if Shift was pressed | bool |
| ctrlKey | Checks if Ctrl was pressed | bool |
| altKey | Checks if Alt was pressed | bool |
| metaKey | Checks if Meta was pressed | bool |
| FocusEvent | onfocus, onfocusin, onfocusout, onblur |  |
| relatedTarget | Get triggering event | Element |
| DragEvent | ondrag, ondragstart, ondragend, ondrageneter, ondragover, ondragleave, ondrop  \*inherits MouseEvent |  |
| dataTransfer | Get dragged/dropped data | Object |
| ClipboardEvent | oncopy, oncut, onpaste |  |
| clipboardData | Get clipboarded data | object |
| PopStateEvent | onpopstate |  |
| state | Get History entries | Object |
| PageTransitionEvent | onpageshow, onpagehide |  |
| persisted | Check if cached by browser | bool |
| HashChangeEvent | onhashchange |  |
| oldURL | Get document URL before change | string |
| newURL | Get document URL after change | string |
| ProgressEvent | onloadstart, onerror |  |
| loaded | Get how much loaded | num |
| total | Get how much total to load | num |
| lengthComputable | Check if progress can be computed | bool |
| TransitionEvent | ontransitionend |  |
| propertyName | Get transition name | string |
| elapsedTime | Get transition runtime in seconds | num |
| pseudoElement | Get transition pseudo-element | string |
| AnimationEvent | onanimationstart, onanimationiteration, onanimationend |  |
| animationName | Get animation name | string |
| elapsedTime | Get transition runtime in seconds | num |
| pseudoElement | Get transition pseudo-element | string |
| StorageEvent | onstorage |  |
| url | Get document changed item location | string |
| storageArea | Get Storage Object | Object |
| key | Get item key | string |
| oldValue | Get item old value | string |
| newValue | Get item new value | string |

JavaScript / ECMAScript = lower camelCase

Place scripts at the bottom of body to improve display speed, since interpretation slows it down

External scripts speeds up loading if cached

Comments = // or /\* \*/

$ = main func in JS lib; \_ = private var; a

String, number, bigint, Boolean, undefined, null, symbol, object [object, array, date]

Object comparisons always return false

Str[0] = ‘A’ does not work

Templates uses ``, interpolate with ${…} -> var, expr

Numbers are always 64-bit floating points

use literals over new keyword since it produces errors and lengthens execution time

compare function - function(a, b){return a - b}; neg = a < b, pos = a > b, 0 = no change

function(){return 0.5 - Math.random()} = random order

Fisher Yates Method: random order shuffle, more accurate

for (let i = points.length -1; i > 0; i--) {

let j = Math.floor(Math.random() \* (i+1));

let k = points[i];

points[i] = points[j];

points[j] = k;

}

Math.max.apply(null, arr) = find highest number in array, same with min OR homemade:

function myArrayMax(arr) {

let len = arr.length;

let max = -Infinity;

while (len--) {

if (arr[len] > max) {

max = arr[len];

}} return max; }

Compare object string property:

cars.sort(function(a, b){

let x = a.type.toLowerCase();

let y = b.type.toLowerCase();

if (x < y) {return -1;}

if (x > y) {return 1;}

return 0; });

After ES2019, can no longer use unstable sort, must use stable sorts with sort method

function getRandomInteger(min, max) {

[min, max) = return Math.floor(Math.random() \* (max - min) ) + min; }

[min, max] = return Math.floor(Math.random() \* (max - min + 1) ) + min; }

Use for, for…of, or Array.foreach for arrays when order is important

Labels? Can use break and continue

Iterables: arrays, string, sets, maps

myDate.constructor === Date and for Array to check if object type

Hoisting only takes the declaration, not the initialization

“use strict” enables strict mode – cant delete variables or functions, no undeclared vars, no dupe

params, no octal num literals, no octal escape chars, no writing to read-only or get-only prop, no

deleting undeletable props, no eval on vars,cant use “arguments” as varName, cant use with,

eval cant create vars in scope it was called, this only refers to object that called function, future

JS version keywords cant be used as varName

Arrow function: name = (params) => {code} replaces name = function(params) {code}

Can ignore () if only one param; this always refers to object that defined arrow func

Class always needs a constructor() method

Modules allows code breakup to separate files; reqs script type=”module”

JSON usually for web server data

Use 2 indents, space around operators, camelCase, { next to group name, <80 chars per line,

lowercase filenames, avoid global vars,

use \ to break strings

with slows performance and clutters scopes

must use object[prop] in loop

name constructor functions with uppercase first letter

functions can be self-invoked by adding () after declaration

arguments.length shows number of args received when function invoked

rest parameter … allows indefinite number of arguments

if a function has too many args, can be reached via arg object

objects are passed by reference, args are passed by values

In an object method, this refers to the object.

Alone, this refers to the global object.

In a function, this refers to the global object.

In a function, in strict mode, this is undefined.

In an event, this refers to the element that received the event.

Methods like call(), apply(), and bind() can refer this to any object.

Call() invokes method with owner as arg

Apply() similar to call, but takes args as an array

Bind() borrows a method from another object

Function closures can access parent functions after it has been closed

Classes are templates for objects

Classes always need a constructor, and aren’t hoisted

Get and set can be used to create functions in classes

Use \_ in constructor, name in get/set

Can only use static on classes, not objects

Callback functions are passed through arguments, usually for async funcs

Use promises instead of callbacks

Promise object has two props: state {pending, fulfilled, rejected} and

result {undefined, value, error}

.then uses a promise

Async before function returns a promise

Await can only be used in async

DOM Animation position container be relative, item be absolute

When passing params into addEventListener, use anonymous func

Event bubbling = innermost first, capturing = outermost first

To add new elem: create elem, append text node, append to existing node

similar when editing, removing

Web Form API: checkValidity(), setCustomValidity()

Props: validity, validationMessage, willValidate

validity prop contains a lot of properties, re-look

Worker API: create worker file, worker object, onmessage work

Fetch API: fetches http requests

Geolocation API: only works in https

Review XML and AJAX

JSON: {“key”:val} : MIME = application/json with .json ext

Allowed: string, num, object, array, bool; not: func, date, undefined

Parse 2nd arg = reviver = func that checks each prop

In for-loop, use dot for key, bracket for value

Use window.location = "demo\_json.php?x=" + myJSON; to send

<https://www.w3schools.com/js/tryit.asp?filename=tryjson_html_table>

JSONP uses <script> instead of XML to avoid cross-domain issues

Server file wraps result in func call; client uses func with same name

create script tag, set src, then append instead of statically creating one

JS Libs for graphs: plotly.js, chart.js, google chart

<script src="https://cdn.plot.ly/plotly-latest.min.js"></script>

<script src="https://cdnjs.cloudflare.com/ajax/libs/Chart.js/2.9.4/Chart.js">

<script src="https://www.gstatic.com/charts/loader.js"></script>

<script>

google.charts.load('current',{packages:['corechart']});

google.charts.setOnLoadCallback(drawChart);

// Your Function

} </script>