px-em-rem-vw-and-vh/

The units `px` , `em` , `rem` , `vw` , and `vh` are used in CSS to specify sizes and lengths, particularly for things like font sizes, margins, paddings, widths, and heights. Here's the difference between each of these units: **1. px (Pixels):**

- `px` stands for pixels and is a fixed unit of length.

- 1px is equal to one dot on a display.

- Example: `font-size: 16px;`

- Pixels provide precise control over the size of elements.

- They do not respond to changes in user settings or device characteristics.

2. em:

- `em` is a relative unit of length.

- 1em is equal to the current font size.

- Example: `font-size: 2em;`

- If the parent element's font size is 16px, `2em` will be 32px (2 times 16px).

- em units are useful for creating responsive designs as they scale proportionally to the parent element's font size.

3. rem:

- `rem` is also a relative unit of length.

- 1rem is equal to the font size of the root element (`<html>`).

- Example: `font-size: 1.5rem;`

- Unlike `em` , `rem` units are relative to a single root element, making them more predictable and consistent.

- They are commonly used for responsive typography as they allow you to set font sizes relative to the root font size.

4. vw (Viewport Width):

- `vw` stands for viewport width and is a relative unit of length.

- 1vw is equal to 1% of the width of the viewport.

- Example: `width: 50vw;`

- Viewport units like `vw` are useful for creating responsive layouts that scale with the width of the device's viewport.

5. vh (Viewport Height):

- `vh` stands for viewport height and is a relative unit of length.

- 1vh is equal to 1% of the height of the viewport.

- Example: `height: 100vh;`

- Viewport units like `vh` are useful for making elements take up the full height or a portion of the viewport, regardless of the device's dimensions.

Here's a comparison of how these units work:

Unit	Description
px	Fixed unit, represents device pixels
em	Relative to the font size of the parent element
rem	Relative to the font size of the root element (<html>)
vw	Relative to 1% of the viewport width
vh	Relative to 1% of the viewport height

In summary:

- Use `px` for fixed sizes that should not change based on the user's settings or device.

- Use `em` for sizes that should scale proportionally with the parent element's font size.

- Use `rem` for sizes that should scale proportionally with the root font size, providing a consistent scale across the entire document.

- Use `vw` and `vh` for responsive designs that need to adapt to the width and height of the viewport, respectively.

These units give you flexibility in creating responsive and adaptable designs that work well on various devices and screens.

https://elementor.com/help/whats-the-difference-between-px-em-rem-vw-and-vh/