Measurement units:

Absolute Length Units: These units are useful when you need precise control over the size of elements, especially in print styles or when working with physical measurements. However, it's important to note that the actual rendering size on different devices may vary, as it depends on the screen resolution and user settings.

Centimeters (cm):

Represents a length in centimeters. 1cm = 1/2.54th of an inch.

Millimeters (mm):

Represents a length in millimeters. 1mm= 1/10th of a centimeter.

Inches (in):

Represents a length in inches. 1in = 2.54 centimeters.

Points (pt):

Represents a length in points. Points are commonly used in print media. One point is equal to 1/72nd of an inch.

Picas (pc):

Represents a length in picas. A pica is a typographic unit commonly used in print media. One pica is equal to 12 points.

Relative Length Units: Relative units are used to specify sizes and distances in relation to other elements or the current context. They allow for more flexible and responsive designs.

Pixels (px):

Represents a length in pixels. One pixel is a single dot on a screen. Pixel values are fixed and do not change with the size of the viewport.

Percentage (%):

Represents a length relative to the parent element or the containing block. For example, setting a width of 50% on an element means it will occupy half the width of its parent container.

EM (em):

Represents a length relative to the font size of the current element. For example, if the font size of an element is set to 16 pixels, and you set its margin to 1em, the margin will be 16 pixels.

REM (rem):

Represents a length relative to the root element's font size. The root element is usually the <html> element. REM units are useful when you want to create scalable designs that are not affected by nested elements' font sizes.

Viewport Percentage (vh, vw, vmin, vmax): These units are relative to the size of the viewport, which is the visible area of the browser window. The units include:

vh: Represents a percentage of the viewport height.

vw: Represents a percentage of the viewport width.

vmin: Represents the smaller of the viewport height and width.

vmax: Represents the larger of the viewport height and width.

Flexbox units (fr): Used in Flexbox layouts to distribute available space proportionally. For example, if you set three elements to widths of 1fr, 2fr, and 1fr, they will occupy 25%, 50%, and 25% of the available space, respectively.

Grid (fr): Represents a fraction of the available space in a CSS Grid container.

The Key difference:

Absolute Units provide a direct and precise representation of size or distance. These units are useful when you require specific and consistent sizes, especially for elements with fixed dimensions or in print media. However, absolute units may not adapt well to different screen sizes and devices, potentially leading to layout issues or elements appearing too small or too large on various displays.

Relative Units define sizes and distances relative to other elements, the font size, or the viewport. offer scalability and responsiveness, allowing designs to adapt to different screen sizes and devices. They also enable designs to adapt to different screen dimensions.

Relative units are commonly used in responsive web design to create flexible and fluid layouts.

However, relative units may have some limitations, such as unexpected sizing behavior in deeply nested elements with multiple font-size changes or potential inconsistencies across different devices. The choice between absolute and relative units depends on the specific requirements of your design. Absolute units offer precise control, while relative units provide flexibility and responsiveness.

It's often best to use a combination of both to create adaptable and visually consistent layouts.