Significant Figures - number of digits that carry meaning in a measurement

Rules

(1) Any nonzero #'s are significant.

(2) Any zeroes b/w numbers are *between* significant

(3) Zeroes before numbers are NOT significant, they're placeholders.

(4) Zeroes after numbers are ONLY significant IF a decimal point is written in the number

Examples

3286 g   4 sf.

403°C   3 sf.
92006 mm   5 sf.

0.0123 kg   3 sf.
0.001706 kg   4 sf
0.98 s   2 sf.

520 mL   2 sf
.520 mL   3 sf
520. mL   3 sf
520.0 mL   4 sf
0.05200 mL   4 sf.

206.050   6 sf.   0.000100   3 sf

Multiplying or Dividing

Your answer can have the same amount of significant figures as the measurement with the LEAST amount of significant figures.

Examples

(1) 20.0 cm × 12 cm = 240 cm²
     3 sf   2 sf   2 sf.

(2) $\dfrac{450.0 \text{ g}}{16.0 \text{ mL}}$ = 28.125 g/mL = 2.8.1 g/mL
     4 sf
     3 sf   3 sf

(3) $\dfrac{65.0 \text{ m}}{.87605 \text{ s}}$ = 74.19667827 m/s = 74.2 m/s
     3 sf
                  3 sf

(4) 31.00 cm × 7.0007 cm = 217.02217 cm² = 217.0 cm²
     4 sf   5 sf   4 sf.

Adding or Subtracting

Your answer can have the same amount of significant figures <u>AFTER THE DECIMAL</u> as the measurement with the <u>LEAST</u> amount of significant figures <u>AFTER THE DECIMAL</u>.

Examples

(1) 32.66 m 2sf
$+$ 4.5496 m 4sf

$37.20\cancel{96} \text{ m}$ 2sf

$\boxed{37.21 \text{ m}}$

      100.00 °C 2sf
$-$ 75.0 °C 1sf

$25.0\cancel{0} \text{ °C}$ 1sf

$\boxed{25.0 \text{ °C}}$

     100.00 g 2sf
$-$ $18 \quad \text{ g}$ 0sf

$82.0\cancel{0} \text{ g}$ 0sf

$\boxed{82 \text{ g}}$