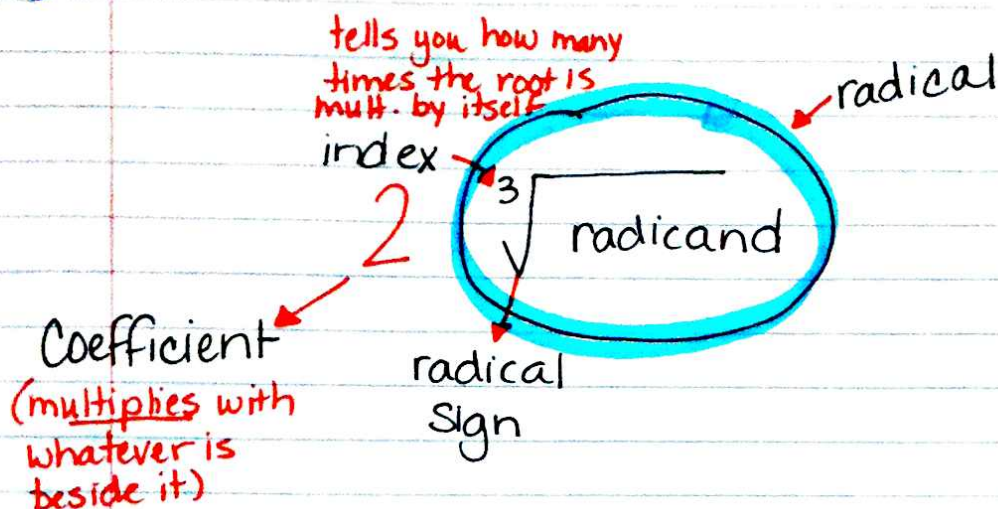


# Numbers #5 - Radicals

Sep 10



$$\sqrt{9} = 3 \quad \text{principal square root} \quad \text{because } 3 \cdot 3 = 9$$

\* if "square root of 9", then its equal to 3 or -3 ( $\pm 3$ )

$3 \cdot 3 = 9$   
 $-3 \cdot -3 = 9$

$$\sqrt[3]{-64} = -4 \quad \text{because } (-4)(-4)(-4) = -64$$

$$\sqrt[4]{10000} = 10 \quad \text{because } (10)(10)(10)(10) = 10000$$

$$\sqrt[5]{\frac{1}{32}} = \frac{\sqrt[5]{1}}{\sqrt[5]{32}} = \frac{1}{2} \quad \text{so } \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{32}$$

## Simplifying Radicals

$$\begin{aligned} \sqrt{40} &\rightarrow \sqrt{8 \times 5} \quad \text{Preferred because one of the radicals is rational (perfect radicand)} \\ &\rightarrow \sqrt{10 \times 4} \\ &\rightarrow \sqrt{20 \times 2} \\ \sqrt{18} &= \sqrt{9 \times 2} \end{aligned}$$

$$\frac{\sqrt{42}}{\sqrt{6}} = \sqrt{\frac{42}{6}} = \sqrt{7}$$

Calculator:

$$\boxed{\sqrt[n]{y}}$$

$$5 \sqrt[5]{32} = 2$$

\* every calculator is different so write down how yours works