

Notes #1 Square Root



The first way to simplify a square root $\sqrt{\quad}$
 use **prime factorization**

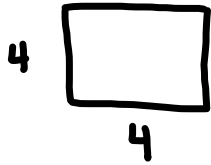
Prime numbers cannot be broken down

2 3 5 7 11 13 ...

prime factorization

30
 \wedge
 5 6
 \wedge
 2 3
 $5 \cdot 2 \cdot 3$ all prime #s

want 2 #s
 that multiply
 to 30



$$4 \cdot 4 = 16$$

Square root

$$\sqrt{16}$$

$$\sqrt{4 \cdot 4}$$

looking for pairs of #'s.

4 answer

Ex 1. $\sqrt{36}$
 $\begin{matrix} & \wedge \\ 6 & 6 \end{matrix}$

$$\sqrt{6 \cdot 6}$$

6

A pair! Only one comes out.

Ex 1 - another way

$$\sqrt{36}$$

$$\begin{matrix} & \wedge \\ 4 & 9 \\ \wedge & \wedge \\ 2 & 2 & 3 & 3 \end{matrix}$$

prime factorization way

all prime #'s

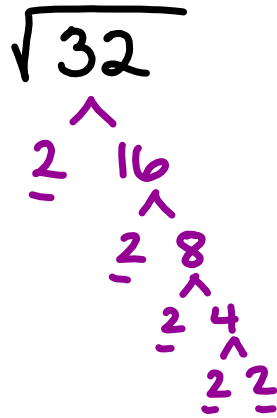
$$\sqrt{2 \cdot 2 \cdot 3 \cdot 3}$$

looking for pairs!

$$2 \cdot 3$$

6

Ex 2.



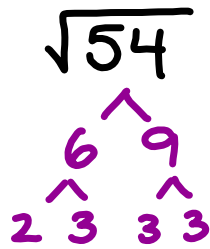
need 2 #'s that multiply to 32

$$\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2} \text{ leftover stays inside}$$

$$2 \cdot 2 \sqrt{2}$$

$$\textcircled{4\sqrt{2}}$$

Ex 3.

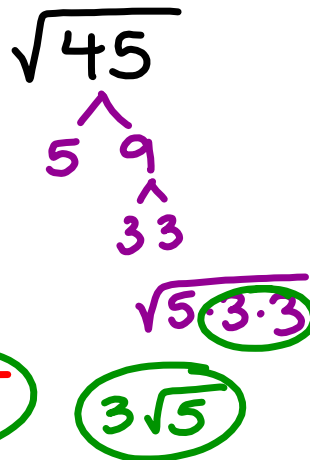
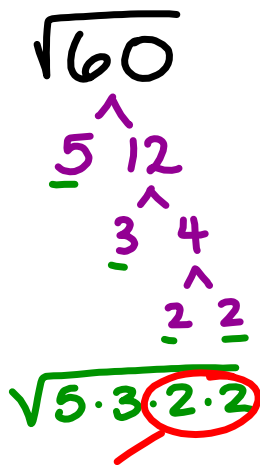


$$\sqrt{2 \cdot 3 \cdot 3 \cdot 3} \text{ PAIRS}$$

$$3 \sqrt{2 \cdot 3}$$

$$\textcircled{3\sqrt{6}}$$

try these:



$$\textcircled{2\sqrt{15}}$$

$$\textcircled{3\sqrt{5}}$$