

1.4: Simplifying Radicals

° Steps to simplify radicals

1) make a factor tree. Circle prime numbers.

*primes: 2, 3, 5, 7, 11, 13, 17, 19, ...

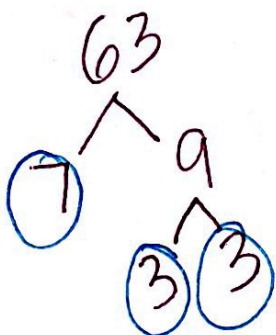
2) write prime numbers under radical

3) circle pairs

4) cross out pairs & bring that number outside on the radical ONCE.

5) finish multiplying

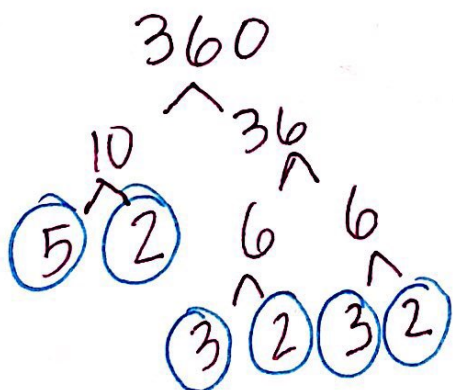
° ex) simplify $\sqrt{63}$



$$\sqrt{\cancel{3 \cdot 3} \cdot 7}$$
$$\boxed{3\sqrt{7}}$$

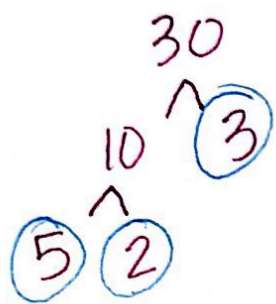
° ex) simplify

$$\sqrt{360}$$



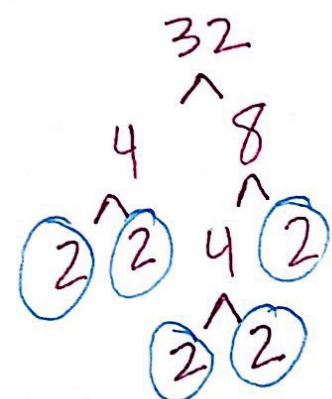
$$\sqrt{\cancel{2 \cdot 2} \cdot 2 \cdot \cancel{3 \cdot 3} \cdot 5}$$
$$2 \cdot 3 \sqrt{2 \cdot 5}$$
$$\boxed{6\sqrt{10}}$$

ex) simplify $\sqrt{30}$



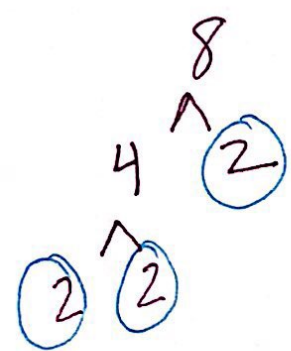
$$\sqrt{2 \cdot 3 \cdot 5}$$
$$\boxed{\sqrt{30}}$$

ex) simplify $\sqrt{32}$



$$\sqrt{\cancel{2 \cdot 2} \cdot \cancel{2 \cdot 2} \cdot 2}$$
$$2 \cdot 2 \sqrt{2}$$
$$\boxed{4\sqrt{2}}$$

ex) simplify $\sqrt{-8}$



$$\sqrt{-2 \cdot \cancel{2} \cdot \cancel{2}}$$
$$2\sqrt{-2}$$

i

$$\boxed{2i\sqrt{2}}$$

i = imaginary number