

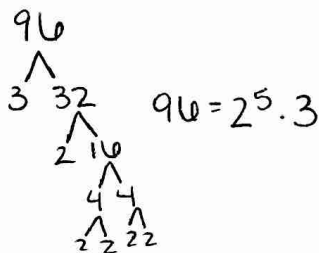
Notes 11/3

Warm up with radical forms & solving.

simplifying radicals

ex $5\sqrt[5]{90x^7y^{10}}$

① factor tree for the number



② write everything out

$$\begin{array}{c}
 \nearrow \text{tells out} \\
 \nearrow \text{how many} \\
 \nearrow \text{in a group} \\
 5\sqrt{\overbrace{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}^2 \cdot 3 \cdot \overbrace{x \cdot x \cdot x \cdot x}^x \cdot \overbrace{x \cdot x \cdot x \cdot x}^{x^2} \cdot \overbrace{y \cdot y \cdot y \cdot y \cdot y \cdot y}^y \cdot \overbrace{y \cdot y \cdot y \cdot y}^y}
 \end{array}$$

$$2 \cdot x \cdot y \cdot y \left(5\sqrt{3x^2} \right)$$

$$\boxed{2xy^2 \left(5\sqrt{3x^2} \right)}$$

ex $3\sqrt[3]{81y^4x^8}$

→ is there a faster way to find what's outside & inside?

short ways

• still factor tree but now...

$$5\sqrt[5]{2^5 \cdot 3 \cdot x^7 \cdot y^{10}} = 2^{5/5} \cdot 3^{1/5} \cdot x^{7/5} \cdot y^{10/5}$$

$$= 2 \cdot 3^{1/5} \cdot x^{5/5} \cdot x^{2/5} \cdot y^2$$

$$= 2 \cdot \underline{3^{1/5}} \cdot x^1 \cdot \underline{x^{2/5}} \cdot y^2$$

$$= \boxed{2xy^2 \left(5\sqrt{3x^2} \right)} \text{ same as above}$$

* overall: divide exponents like yesterday, whole # outside root, remainder inside.