

# L15 Powers and Roots

$a^x$  → exponent  
→ how many times base is used as a factor (multiply)  
→ base

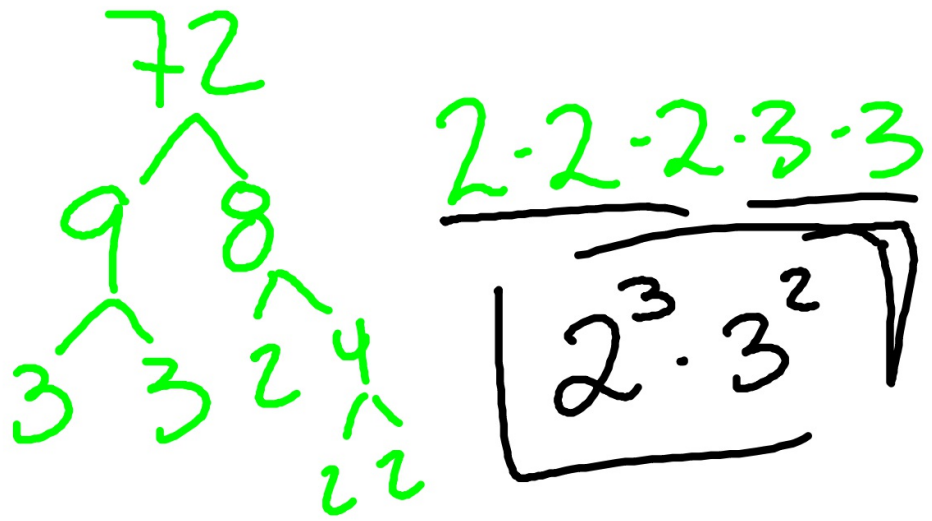
$$5^2 = 5 \cdot 5$$
$$8^4 = 8 \cdot 8 \cdot 8 \cdot 8$$

$$\underline{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2} \cdot \underline{3 \cdot 3 \cdot 3} \cdot \underline{5 \cdot 5 \cdot 5} \cdot 7$$

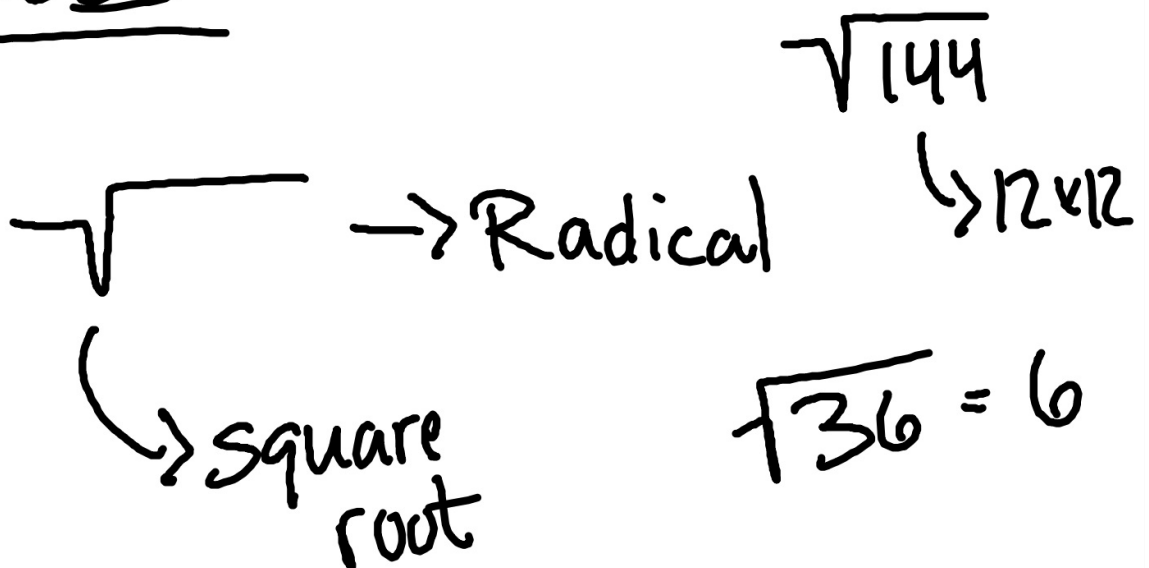
$$2^5 \cdot 3^3 \cdot 5^3 \cdot 7$$

$$\left. \begin{array}{l} a^1 = a \\ a^0 = 1 \end{array} \right\} a \neq 0$$

# PRIME FACTORIZATION w/ Exponents



## Roots



Cubed  
root

$$\sqrt[3]{27} = 3$$

$$3 \cdot 3 \cdot 3 = 27$$

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

→ 5<sup>th</sup> root  
of 32

$$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$$

$$\sqrt{225} = 15$$

$$1^2 \rightarrow 20^2$$

$X$	$X^2$	$\sqrt{X^2}$
1	1	1
2	4	2
20	400	20

L15

#1, 4-12, 15-18, 20, 22, 25, 28