Simplifying Radicals 2

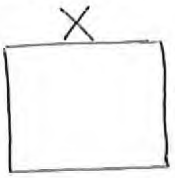
#16

Remember, when multiplying... if they have the same base, ADD THE EXPONENTS!

1) $x^2 \cdot x^4 = x^{2+4} = \boxed{x^6}$

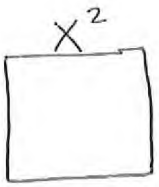
2) $x^2 \cdot x^2 = x^{2+2} = \boxed{x^4}$

Consider the following squares...

3) 

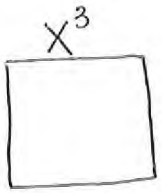
Area $= x \cdot x = x^2$

So... $\sqrt{x^2} = x$

4) 

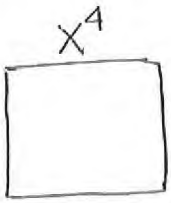
Area $= x^2 \cdot x^2 = x^4$

So... $\sqrt{x^4} = x^2$

5) 

Area $= x^3 \cdot x^3 = x^6$

So... $\sqrt{x^6} = x^3$

6) 

Area $= x^4 \cdot x^4 = x^8$

So... $\sqrt{x^8} = x^4$

Examples:

7) $\sqrt{x^{12}} = \boxed{x^6}$

b/c $x^6 \cdot x^6 = x^{12}$

8) $\sqrt{x^{10}y^{14}}$

$= \sqrt{x^{10}} \cdot \sqrt{y^{14}}$

$= \boxed{x^5 y^7}$

9) $\sqrt{4x^9}$

$\sqrt{4} \cdot \sqrt{x^9}$

$2 \cdot \sqrt{x^8 \cdot x^1}$

$2 \cdot \sqrt{x^8} \cdot \sqrt{x}$

$2 \cdot x^4 \cdot \sqrt{x}$

$\boxed{2x^4\sqrt{x}}$

10) $\sqrt{8x^5y^7}$

$\sqrt{8} \cdot \sqrt{x^5} \cdot \sqrt{y^7}$

$\sqrt{4} \cdot \sqrt{2} \cdot \sqrt{x^4 \cdot x^1} \cdot \sqrt{y^6 \cdot y}$

$2\sqrt{2} \cdot \sqrt{x^4}\sqrt{x} \cdot \sqrt{y^6}\sqrt{y}$

$2\sqrt{2} \cdot x^2\sqrt{x} \cdot y^3\sqrt{y}$

$\boxed{2x^2y^3\sqrt{2xy}}$