

WARM-UP/Vocabulary Review: Write the general form of the following Exponent Rules:

$a \cdot x^b$ x^{a+b} <u>Numerical Example:</u>	$\frac{x^a}{x^b}$ x^{a-b} <u>Numerical Example:</u>	x^{-a} $\frac{1}{x^a}$ <u>Numerical Example:</u>
$(x^a)^b$ $x^{a \cdot b}$ <u>Numerical Example:</u>	x^0 1 <u>Numerical Example:</u>	$\left(\frac{x}{y}\right)^a$ $\frac{x^a}{y^a}$ <u>Numerical Example:</u>

Example Set: Simplify each expression. Your answers should only include positive exponents.

1. $x \cdot x^{\frac{1}{2}}$
 $x^{\frac{3}{2}}$

2. $(p^{-1})^{-\frac{1}{2}}$
 $p^{\frac{1}{2}}$

3. $2x \cdot 4x^{-\frac{1}{2}}$
 $8x^{\frac{1}{2}}$

4. $3v^{\frac{3}{4}} \cdot 2v^{\frac{1}{4}}$
 $6v$

5. $\frac{3m^{-\frac{1}{2}}}{2m^{\frac{7}{4}}}$
 $\frac{3m^{-\frac{2}{4}}}{2m^{\frac{7}{4}}}$
 $\frac{3m^{-\frac{9}{4}}}{2} = \frac{3}{2m^{\frac{9}{4}}}$

6. $\frac{2p^{\frac{4}{3}}}{p^{\frac{2}{3}}}$
 $2p^{\frac{2}{3}}$

7. $\frac{x^{\frac{3}{4}}}{x^{-\frac{3}{2}}}$
 $x^{\frac{9}{4}}$

8. $\frac{\left(\frac{1}{n^2}\right)^{\frac{1}{2}}}{n \cdot n}$
 $\frac{n^{\frac{1}{4}}}{n^2} = n^{-\frac{7}{4}} = \frac{1}{n^{\frac{7}{4}}}$

9. $\frac{\left(x^{\frac{3}{2}}\right)^2}{x^2 x^{\frac{3}{2}}}$
 $= \frac{x^{\frac{6}{2}}}{x^{\frac{7}{2}}}$
 x