

# Warm Up Questions

**Simplify by writing as a single power.**

$$1. \frac{(b^9 \cdot b^{-7} \cdot b^3)^2 \times (b^4 \cdot b^{-3})^2}{b^{-14}}$$

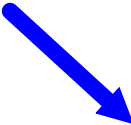
$$2. \frac{(a^3)^2 \cdot (a^{1/2})^3}{(a^{3/2})^4}$$

$$3. \frac{(-3/5)^{-3/4} \cdot (-3/5)^{1/2}}{(-3/5)^{5/4}}$$

$$\begin{aligned} & \frac{(b^9 \cdot b^{-7} \cdot b^3)^2 \times (b^4 \cdot b^{-3})^2}{b^{-14}} \\ &= \frac{(b^5)^2 \times (b^1)^2}{b^{-14}} \\ &= \frac{b^{10} \times b^2}{b^{-14}} \\ &= \frac{b^{12}}{b^{-14}} \\ &= b^{26} \end{aligned}$$


$$\frac{(a^3)^2 \cdot (a^{1/2})^3}{(a^{3/2})^4}$$
$$= \frac{a^6 \cdot a^{3/2}}{a^{12/2}} \rightarrow \begin{array}{l} 6/1 + 3/2 \\ 12/2 + 3/2 \\ = 15/2 \end{array}$$
$$= \frac{a^{15/2}}{a^{12/2}} \rightarrow \begin{array}{l} 15/2 - 12/2 \\ = 3/2 \end{array}$$
$$= a^{3/2}$$

$$\frac{(-3/5)^{-3/4} \cdot (-3/5)^{1/2}}{(-3/5)^{5/4}}$$



-3/4	+	1/2
-3/4	+	2/4
		-1/4

$$= \frac{(-3/5)^{-1/4}}{(-3/5)^{5/4}}$$



-1/4	-	5/4
		-6/4
		Reduce !!
		-3/2

$$= (-3/5)^{-3/2}$$
$$= (-5/3)^{3/2}$$

# What happens when there's more than one base?

1.  $\underline{a^4} \times \underline{a^{-4}} \times \underline{b^3} \times \underline{a^2} \times \underline{b^{-4}}$

$$= a^{4+(-4)+2} b^{3+(-4)}$$

$$= a^2 b^{-1}$$

$$= \frac{a^2}{b^{-1}}$$

$$2. \quad (\underline{a^3} \underline{b^2})^3$$

$$= \begin{array}{|c|} \hline \begin{array}{cc} a^{3(3)} & b^{2(3)} \\ a^9 & b^6 \end{array} \\ \hline \end{array}$$

$$3. \quad \frac{(a^5 b^3)^2}{a^3 b^{-2}}$$

$$\begin{aligned} &= \frac{a^{5(2)} b^{3(2)}}{a^3 b^{-2}} \\ &= \frac{a^{10} b^6}{a^3 b^{-2}} \\ &= a^{10-3} b^{6-(-2)} \\ &= a^7 b^8 \end{aligned}$$

4. 
$$\frac{10c^8d^{-2}}{2c^4d^5}$$

$$\begin{aligned} &= 5c^{8-4}d^{-2-5} \\ &= 5c^4d^{-7} \\ &= \frac{5c^4}{d^7} \end{aligned}$$



**5.** 
$$\frac{(4d^3c^{-3})(3d^6c^7)}{(2d^3c)^2}$$

$$=$$

$$=$$

6.  $\left( \frac{(-10a^2b)^2}{10a^5b^{11}} \right)^{-1}$

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