



Check Up

Simplify the following expressions.

1. $a^4 b^2 \cdot 2ab^4$

2. $\frac{2x^9 y^4}{x^2 y^4}$

3. $(2g^7)^5$

4. $(d^2 e^3)^5$

5. $(3a^2 b^4)^2$

6. $(-3x^2 y)(-2x^2 y^5)^2$

7. $\left(\frac{2a^{10} b^4}{8a^5}\right)^2$

8. $\frac{(4x^3 y^3)(7x^4 y^3)}{14x^2 y}$



Compare your answers.

Simplify the following expressions.

$$\begin{aligned} 1. \quad & a^4 b^2 \cdot 2ab^4 \\ &= 2a^{4+1} b^{2+4} \\ &= 2a^5 b^6 \end{aligned}$$

$$\begin{aligned} 2. \quad & \frac{2x^9 y^4}{x^2 y^4} \\ &= 2x^{9-2} y^{4-4} \\ &= 2x^7 \end{aligned}$$

$$\begin{aligned} 3. \quad & (2g^7)^5 \\ &= 2^5 g^{7 \cdot 5} \\ &= 32g^{35} \end{aligned}$$

$$\begin{aligned} 4. \quad & (d^2 e^3)^5 \\ &= d^{2 \cdot 5} e^{3 \cdot 5} \\ &= d^{10} e^{15} \end{aligned}$$

$$\begin{aligned} 5. \quad & (3a^2 b^4)^2 \\ &= 3^{1 \cdot 2} a^{2 \cdot 2} b^{4 \cdot 2} \\ &= 3^2 a^4 b^8 \\ &= 9a^4 b^8 \end{aligned}$$

$$\begin{aligned} 6. \quad & (-3x^2 y)(-2x^2 y^5)^2 \\ &= (-3x^2 y)((-2)^2 x^{2 \cdot 2} y^{5 \cdot 2}) \\ &= (-3x^2 y)(4x^4 y^{10}) \\ &= (-3 \cdot 4)x^{2+4} y^{1+10} \\ &= -12x^6 y^{11} \end{aligned}$$

$$\begin{aligned} 7. \quad & \left(\frac{2a^{10} b^4}{8a^5} \right)^2 \\ &= \frac{2^2 a^{10 \cdot 2} b^{4 \cdot 2}}{8^2 a^{5 \cdot 2}} \\ &= \frac{4a^{20} b^8}{64a^{10}} \\ &= \frac{4}{64} \cdot a^{20-10} b^8 \\ &= \frac{a^{10} b^8}{16} \end{aligned}$$

$$\begin{aligned} 8. \quad & \frac{(4x^3 y^3)(7x^4 y^3)}{14x^2 y} \\ &= \frac{(4 \cdot 7)x^{3+4} y^{3+3}}{14x^2 y} \\ &= \frac{28x^7 y^6}{14x^2 y} \\ &= \frac{28}{14} \cdot x^{7-2} y^{6-1} \\ &= 2x^5 y^5 \end{aligned}$$