Name Answer Key

Date

Notes: Exponents Day #7 Multi Step

Period

1) $(-3^2 x^6)^5$

$(-3^{2 \cdot 5} x^{6 \cdot 5}$

$(-3^{10} x^{30})$

$\boxed{-59049x^{30}}$

2) $(7j^2)^3$

$7^{3 \cdot 2} j^{2 \cdot 3}$

$\boxed{343j^6}$

3) $(8n^2 p)^3$

$8^3 n^{2 \cdot 3} p^{1 \cdot 3}$

$\boxed{512n^6 p^3}$

4) $2(3a^2)^3$

$2(3^3 a^{2 \cdot 3})$

$2(27a^6) = \boxed{54a^6}$

5) $(xy)^2 (x^2 y^2)^2$

$x^2 y^2 x^4 y^4$

$\boxed{x^6 y^6}$

6) $\left(\frac{8x}{2x}\right)^2 = (4)^2 = \boxed{16}$

OR

$\frac{8^2 x^4}{2^2 x^4} = \frac{64}{4} = 16$

7) $\left(\frac{3x^2}{2y^2}\right)^5$

$\frac{3^5 x^{2 \cdot 5}}{2^5 y^{2 \cdot 5}} = \boxed{\frac{243x^{10}}{32y^{10}}}$

8) $\left(\frac{3x}{4x^2}\right)^2$

$\frac{3^2 x^2}{4^2 x^4} = \frac{9x^{-2}}{16}$

$\boxed{\frac{9}{16x^2}}$

9) Simplify: $\frac{(5x^2y^3)^2(4x^3y)}{10xy^3}$ $= \frac{(5^2x^{2\cdot2}y^{3\cdot2})(4x^3y)}{10xy^3}$

$\frac{(25x^4y^6)(4x^3y)}{10xy^3} = \frac{100x^7y^7}{10xy^3} = \boxed{10x^6y^4}$

10) Simplify: $\frac{(3x^4y^8)(-10x^7y^5)}{-5x^2y^8} = \frac{-30x^{11}y^{13}}{-5x^2y^8} = \boxed{6x^9y^5}$

11) Simplify: $\frac{20x^{10}y^4x^2}{4x^{20}yz^5} = \frac{5x^{-10}y^3x^2}{z^5} = \frac{5y^3x^{-8}}{z^3}$

$\boxed{\frac{5y^3}{x^8z^3}}$