

Name: Keyz

Algebra II

Period: _____

Homework: Monomials and Exponent Rules

Directions: Simplify the monomials below. Each expression should have positive exponents only.

1.) Subtract $-3n^2$ from $-7n^2$

$$-7n^2 - 3n^2$$

$$= \boxed{-10n^2}$$

2.) $(-8x^4y^3) \cdot (2x^5y^2) + 7x^9y^5$

$$-8 \cdot 2x^{4+5}y^{3+2} + 7x^9y^5$$

$$-16x^9y^5 + 7x^9y^5$$

$$= \boxed{-9x^9y^5}$$

3.) $(-4a^3b^2)^2 \cdot (3a^2b)$

$$(-4)^2 a^{3 \cdot 2} b^{2 \cdot 2} \cdot 3a^2b$$

$$16a^6b^4 \cdot 3a^2b$$

$$16 \cdot 3 a^{6+2} b^{4+1}$$

$$= \boxed{48a^8b^5}$$

4.) $\frac{27x^4y}{3xy}$

$$\frac{27x^{4-1}y^{1-1}}{3}$$

$$9x^3y^0 = \boxed{9x^3}$$

5.) $(3c^4d)^{-2}$

$$= \frac{1}{(3c^4d)^2}$$

$$= \frac{1}{(3)^2 c^{4 \cdot 2} d^{1 \cdot 2}} \Rightarrow \boxed{\frac{1}{9c^8d^2}}$$

6.) $(6pq^4)^2 \cdot -2p^{-2}q^{-8}$

$$(6)^2 p^{1 \cdot 2} q^{4 \cdot 2} \cdot -2p^{-2}q^{-8}$$

$$36p^2q^8 \cdot -2p^{-2}q^{-8}$$

$$36 \cdot -2 p^{2+(-2)} q^{8+(-8)}$$

$$-72p^0q^0 \Rightarrow \boxed{-72}$$

7.) $5c^{-7}d^2 \cdot (-cd^2)^4$

$$5c^{-7}d^2 \cdot (-1)^4 c^{1 \cdot 4} d^{2 \cdot 4}$$

$$5c^{-7}d^2 \cdot 1c^4d^8$$

$$5 \cdot 1 c^{-7+4} d^{2+8}$$

$$5c^{-3}d^{10} \Rightarrow \boxed{\frac{5d^{10}}{c^3}}$$

8.) $\frac{18w^4x^9}{14w^5x^5}$

$$\frac{18}{14} w^{4-5} x^{9-5}$$

$$\frac{9}{7} w^{-1} x^4 \Rightarrow \boxed{\frac{9x^4}{7w}}$$

9.) $\frac{15x^2y - 6x^7y}{(3xy)^2}$

$$\frac{15 \cdot -6x^{2+7}y^{1+1}}{(3)^2 x^{1 \cdot 2} y^{1 \cdot 2}}$$

$$= \frac{-90x^9y^2}{9x^2y^2} \Rightarrow -10x^{9-2}y^{2-2}$$

$$\Rightarrow -10x^7y^0 \Rightarrow \boxed{-10x^7}$$