

Name: \_\_\_\_\_

Exponents & Exponential Functions



Date: \_\_\_\_\_

Monomials: All Operations

**Simplify the following monomials. Your answer should contain positive exponents only.**

1.  $3a^3b^2 - 5a^3b^2$

2.  $5xy - 2x^2y + 2xy$

3. Subtract  $-2w$  from  $-6w$

4.  $a^4 \cdot a^3$

5.  $(-x^5)^2$

6.  $\frac{k^9}{k^5}$

7.  $-5x^3 \cdot (-3x^4)$

8.  $(-2x^2y)^3 \cdot (-3xy^3)$

9.  $2a^{-5}b^6 \cdot 5a^2b^2$

10.  $(-4y^4)^2$

11.  $(a^2bc^3)^4 \cdot (b^2c)^3$

12.  $(6cd^{-1})^{-3}$

13.  $(4a)^{-3} \cdot a^{-4}$

14.  $(3xy)^2 \cdot (-4x^2y^2)^3$

15.  $(4a^{-1}b^5c^{-3})^3$

16.  $\frac{9d^8}{3d^{10}}$

17.  $\frac{6a^5b^2}{4ab^3}$

18.  $\frac{32x^3y^2z^5}{-8xyz^2}$

19.  $\frac{(2y^5)^4}{10y^{15}}$

20.  $\left(\frac{3x^5y^3}{x^3y^6}\right)^4$

21.  $\frac{(-6a^5b)^2}{12a^7b} - 8a^3b$

## Adding and Subtracting Polynomials

Simplify each expression.

1)  $(5p^2 - 3) + (2p^2 - 3p^3)$

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

3)  $(4 + 2n^3) + (5n^3 + 2)$

4)  $(4n - 3n^3) - (3n^3 + 4n)$

5)  $(3a^2 + 1) - (4 + 2a^2)$

6)  $(4r^3 + 3r^4) - (r^4 - 5r^3)$

7)  $(5a + 4) - (5a + 3)$

8)  $(3x^4 - 3x) - (3x - 3x^4)$

9)  $(-4k^4 + 14 + 3k^2) + (-3k^4 - 14k^2 - 8)$

10)  $(3 - 6n^5 - 8n^4) - (-6n^4 - 3n - 8n^5)$

11)  $(12a^5 - 6a - 10a^3) - (10a - 2a^5 - 14a^4)$

12)  $(8n - 3n^4 + 10n^2) - (3n^2 + 11n^4 - 7)$

13)  $(-x^4 + 13x^5 + 6x^3) + (6x^3 + 5x^5 + 7x^4)$

14)  $(9r^3 + 5r^2 + 11r) + (-2r^3 + 9r - 8r^2)$

15)  $(13n^2 + 11n - 2n^4) + (-13n^2 - 3n - 6n^4)$

16)  $(-7x^5 + 14 - 2x) + (10x^4 + 7x + 5x^5)$