

## 6.1 Simplify the integer exponents.

1)  $(x^2y^3)^4(x^3y)^3$

2)  $(x^2)^0(x^{-3})$

3)  $\frac{12x^3y^{-2}}{8x^{-2}y^4z}$

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

5)  $(8x^5y^{-4}z)(9x^{-3}y^{-3}z^{-5})$

7)  $(3x^4y^2)^2(9x^{-9}y^{-5})$

8)  $(-4x^6y^{-2})(8x^{-9}y^{-5})$

9)  $\frac{21x^{-5}y^{-6}z}{27x^4y^{-8}}$

## 6.2 Simplify Rational exponents.

10)  $64^{\frac{2}{3}}$

11)  $343^{\frac{2}{3}}$

12)  $\sqrt[3]{x^6y^{12}z^9}$

13)  $\sqrt[5]{x^{-25}y^{10}z^{15}}$

6.3 Polynomials: Write the following in **Standard Form**. State the **Leading Coefficient**. Then classify according to the **degree and number of terms**.

14)  $4x - 5x^3 + 2x^2 + 1$

15)  $14x^3 - 6x^4 + 2x^5$

16)  $8x - 5x^2 + 2$

## Add or Subtract the polynomials.

17)  $(8x^3 - 5x^2 + 2x + 4) + (-3x^3 - 2x^2 + 6x - 3)$

18)  $(10x^2 - 3x^4 + 6x + 1) - (-4x^4 - 3x^2 + 9x - 3)$

## 6.5: Multiply Polynomials.

19)  $(6x + 1)(9x - 3)$

20)  $(5x - 3)^2$

21)  $(2x - 3)(2x + 3)$

22)  $(5x - 2)(2x^2 - 4x + 3)$

23) A living room has a length of  $2x - 3$  feet and a width of  $x + 3$  feet. Write a polynomial to express the **area** of the living room. Calculate the area if  $x = 4$ .