

Polynomial Review for Test

1) To be a polynomial, exponents will be positive whole numbers.

Use your polynomial skills to solve the following equations.

2)  $4x(x-3) + 6x(x+5) - 100 = 74 + 5x(2x-8)$   
 $4x^2 - 12x + 6x^2 + 30x - 100 = 74 + 10x^2 - 40x$   
 $10x^2 + 18x - 100 = 74 + 10x^2 - 40x$   
 $18x - 100 = 74 - 40x$   
 $58x = 174$   
 $x = 3$

3)  $15x^2 - 2x(4x - 3) = 10x(x + 3) - 3(x^2 - 1)$   
 $15x^2 - 8x^2 + 6x = 10x^2 + 30x - 3x^2 + 3$   
 $7x^2 + 6x = 7x^2 + 30x + 3$   
 $6x = 30x + 3$   
 $-24x = 3$   
 $x = -\frac{1}{8}$

Write in standard form. Then tell the leading coefficient. Then name each polynomial by degree and number of terms.

4)  $k^8 + 6k^3 - 3k^2 - 9k^4 + 7$   
 Standard Form:  $k^8 - 9k^4 + 6k^3 - 3k^2 + 7$   
 Leading Coefficient: 1  
 Name: 8th Degree Polynomial

5)  $3n$   
 Standard Form:  $3n$   
 Leading Coefficient: 3  
 Name: Linear Monomial

6)  $-4$   
 Standard Form:  $-4$   
 Leading Coefficient:  $-4$   
 Name: Constant Monomial

7)  $-5v^4$   
 Standard Form:  $-5v^4$   
 Leading Coefficient:  $-5$   
 Name: Quartic Monomial

8)  $-8 + 2n - 9n^2$

Standard Form:  $-9n^2 + 2n - 8$

Leading Coefficient:  $-9$

Name: Quadratic Trinomial

9)  $-2b^2 - 5b^3$

Standard Form:  $-5b^3 - 2b^2$

Leading Coefficient:  $-5$

Name: Cubic Binomial

Simplify each expression.

10)  $-3n + 5 - 4(5n^2 - 6 - 4n)$   
 $-3n + 5 - 20n^2 + 24 + 16n$   
 $-20n^2 + 13n + 29$

12)  $(5k^2 + 8k - 7k^3) - (7k + 5k^2 + 5k^3)$   
 $-12k^3 + k$

Find each product.

14)  $(-2x - 8y)(6x - y)$   
 $-12x^2 + 2xy - 48xy + 8y^2$   
 $-12x^2 - 46xy + 8y^2$

16)  $(2k + 8)(2k - 8)$   
 $4k^2 - 64$

18)  $(n + 5)(n + 5)$   
 $n^2 + 10n + 25$

20)  $(6x + 4)(2x + 2)$   
 $12x^2 + 12x + 8x + 8$   
 $12x^2 + 20x + 8$

22)  $(6x^2 + 5x + 1)(3x^2 + 7x + 7)$

$18x^4 + 42x^3 + 42x^2 + 15x^3 + 35x^2 + 35x + 3x^2 + 7x + 7$

$18x^4 + 57x^3 + 77x^2 + 42x + 7$

11)  $(-4n^2 - 8 + 7n^4) + (-n^4 - 2n^2 + 8)$   
 $6n^4 - 6n^2$

13)  $(6 - 7x^2 + 3x^4 - 4x^3) + (-2 + 5x^3)$   
 $3x^4 + x^3 - 7x^2 + 4$

15)  $(5b + 5)(5b - 5)$   
 $25b^2 - 25$

17)  $(4 + 8k)^2$   
 $16 + 64k + 64k^2$   
 $64k^2 + 64k + 16$

19)  $(5k - 7)(7k - 6)$   
 $35k^2 - 30k - 49k + 42$   
 $35k^2 - 79k + 42$

21)  $2xy(-2x^2 + 6xy + 6y^2)$   
 $-4x^3y + 12x^2y^2 + 12xy^3$

23)  $(-2p + 4)(5p^2 - 6p - 1)$

$-10p^3 + 12p^2 + 2p + 20p^2 - 24p - 4$

$-10p^3 + 32p^2 - 22p - 4$

## Solving Equations Practice

Solve each equation.

1)  $-3x - 6(5x - 1) = -192$

$$\begin{array}{r} -3x - 30x + 6 = -192 \\ -33x = -198 \\ \frac{-33x}{-33} = \frac{-198}{-33} \end{array}$$

$$\boxed{x = 6}$$

2)  $-6(4 + 3m) = -96$

$$\begin{array}{r} -24 - 18m = -96 \\ +24 \quad \quad +24 \\ -18m = -72 \\ \frac{-18m}{-18} = \frac{-72}{-18} \end{array}$$

$$\boxed{m = 4}$$

3)  $91 = 6(2x + 3) + 1$

$$\begin{array}{r} 91 = 12x + 18 + 1 \\ 91 = 12x + 19 \\ -19 \quad -19 \end{array}$$

$$\frac{72}{12} = \frac{12x}{12}$$

$$\boxed{x = 6}$$

4)  $6(2 + 5x) = -78$

$$\begin{array}{r} 12 + 30x = -78 \\ -12 \quad -12 \\ 30x = -90 \\ \frac{30x}{30} = \frac{-90}{30} \end{array}$$

$$\boxed{x = -3}$$

5)  $-68 = -4(7x + 6) - 4(1 + 3x)$

$$-68 = -28x - 24 - 4 - 12x$$

$$\begin{array}{r} -68 = -40x - 28 \\ +28 \quad +28 \end{array}$$

$$-40 = -40x$$

$$\boxed{x = 1}$$

6)  $-7(-8a - 5) + 2(5a - 7) = -45$

$$56a + 35 + 10a - 14 = -45$$

$$\begin{array}{r} 66a + 21 = -45 \\ -21 \quad -21 \end{array}$$

$$66a = -66$$

$$\boxed{a = -1}$$

7)  $-53 = 8(3x + 6) + 7(8x - 3)$

$$-53 = 24x + 48 + 56x - 21$$

$$\begin{array}{r} -53 = 80x + 27 \\ -27 \quad -27 \end{array}$$

$$-80 = 80x$$

$$\boxed{x = -1}$$

8)  $68 = 4(b + 6) - 8(b - 6)$

$$68 = 4b + 24 - 8b + 48$$

$$\begin{array}{r} 68 = -4b + 72 \\ -72 \quad -72 \end{array}$$

$$-4 = -4b$$

$$\boxed{b = 1}$$

$$9) 5n - 30 = -6(5n + 5)$$

$$\begin{array}{r} 5n - 30 = -30n - 30 \\ +30n \quad +30n \end{array}$$

$$\begin{array}{r} 35n - 30 = -30 \\ +30 \quad +30 \end{array}$$

$$35n = 0$$

$$\boxed{n=0}$$

$$11) 4 - 4(n - 6) = -8n$$

$$4 - 4n + 24 = -8n$$

$$\begin{array}{r} -4n + 28 = -8n \\ +8n \quad +8n \end{array}$$

$$4n + 28 = 0$$

$$4n = -28$$

$$\boxed{n=-7}$$

$$13) -2(3 + 5x) = -3x - 2(8 + 3x)$$

$$-6 - 10x = -3x - 16 - 6x$$

$$\begin{array}{r} -6 - 10x = -9x - 16 \\ +9x \quad +9x \end{array}$$

$$\begin{array}{r} -6 - x = -16 \\ +6 \quad +6 \end{array}$$

$$-x = -10$$

$$\boxed{x=10}$$

$$15) 6(x + 5) = 3(x + 2)$$

$$\begin{array}{r} 6x + 30 = 3x + 6 \\ -3x \quad -3x \end{array}$$

$$3x + 30 = 6$$

$$3x = -24$$

$$\boxed{x=-8}$$

$$10) -14 + 6x = 8(-7x + 6)$$

$$\begin{array}{r} -14 + 6x = -56x + 48 \\ +56x \quad +56x \end{array}$$

$$\begin{array}{r} -14 + 62x = 48 \\ +14 \quad +14 \end{array}$$

$$62x = 62$$

$$\boxed{x=1}$$

$$12) -7 - 3(8 - 3p) = 6p - 7$$

$$-7 - 24 + 9p = 6p - 7$$

$$-31 + 9p = 6p - 7$$

$$-31 + 3p = -7$$

$$3p = 24$$

$$\boxed{p=8}$$

$$14) -2(n + 1) = -4(n + 2) - 4$$

$$-2n - 2 = -4n - 8 - 4$$

$$-2n - 2 = -4n - 12$$

$$2n - 2 = -12$$

$$2n = -10$$

$$\boxed{n=-5}$$

$$16) -7(4p + 3) - 3 = 2(p + 3)$$

$$-28p - 21 - 3 = 2p + 6$$

$$-28p - 24 = 2p + 6$$

$$-30p - 24 = 6$$

$$-30p = 30$$

$$\boxed{p=-1}$$