



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

## Mr. Peacock Geometry Course - Algebra 1 Review Packet

### Multiplying Monomials

#### Review:

$$a^2 \times a^6 = a^8$$

$$(a^2)^6 = a^{12}$$

$$(ab)^4 = a^4b^4$$

$$(a^3b^4)^2 = a^6b^8$$

1.  $n^5(n^2)$

2.  $(-3ab^4)^3$

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

4.  $(-7x^2)(x^4)$

5.  $(2a^2)(8a)$

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### Adding and Subtracting Polynomials

#### Review:

$$\underline{(4x + 6y)} + \underline{(3x + 9y)} = 7x + 15y$$

Combine like terms!

$$(7x^2 - 8) - (-3x^2 + 1) = \underline{(7x^2 - 8)} + \underline{(3x^2 - 1)} = 10x^2 - 9$$

6.  $(4a - d) + (3a + 6)$

7.  $(x^2 + y^2) - (-x^2 + y^2)$

8.  $(2x^2 + 5xy + 4y^2) - (2x^2 + 5xy + 4y^2)$

## Multiplying a Polynomial by a Monomial

Review:

$$6a(a^2 + 5) = 6a^3 + 30a$$

$$4(n-2) + 5n = 4n - 8 + 5n = 9n - 8$$

9.  $8b(b - \frac{1}{2}b)$

10.  $2a(a^2 + 4a + 8) - 3a(3a^2 + 3a - 18)$

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## Multiplying Polynomials (FOIL)

Review:

$$(2x-6)(3x+1) = 6x^2 + 2x - 18x - 6 = 6x^2 - 16x - 6$$

11.  $(5t + 4)(2t - 6)$

12.  $(5m - 3n)(4m - 2n)$

13.  $(2x - 4)(2x + 5)$

14.  $(3b^3 - 2b^2 + b)(2b - 3)$

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## Factoring with the Distributive Property

Review:

$$3a + 3b = 3(a + b)$$

$$xy - xz = x(y - z)$$

$$12xy + 6y = 6y(2x + 1)$$

What's the greatest common factor? That's what is on the outside of the parenthesis.

15.  $24x + 48y$

16.  $30mn^2 + m^2n - 6n$

17.  $45s^3 - 15s^2$

18.  $12p^3q^2 - 18p^2q^2 + 30p$

19.  $4xy^3 + 16x^2y^2$

20.  $9x^2 - 3x$

## Solving Equations

### Review:

a.  $5z + 16 = 51$

$$\begin{array}{r} -16 \quad -16 \\ \hline 5z = 35 \\ 5 \quad 5 \\ \hline z = 7 \end{array}$$

b.  $\frac{n}{3} - 7 = 28$

$$\begin{array}{r} +7 \quad +7 \\ \hline 3 \left( \frac{n}{3} \right) = 35 * 3 \\ n = 105 \end{array}$$

c.  $6 - a = 5a + 30$

$$\begin{array}{r} +a \quad +a \\ \hline 6 = 6a + 30 \\ -30 \quad -30 \\ \hline -24 = 6a \\ 6 \quad 6 \\ \hline -4 = a \end{array}$$

d.  $5y - 2y = 3y + 2$

$$\begin{array}{r} 3y = 3y + 2 \\ -3y \quad -3y \\ \hline 0 = 2 \end{array}$$

no solution

e.  $3(a + 1) - 5 = 3a - 2$

$$\begin{array}{r} 3a + 3 - 5 = 3a - 2 \\ 3a - 2 = 3a - 2 \\ +2 \quad +2 \\ \hline 3a = 3a \\ 3 = 3 \\ \hline \text{Infinitely many solutions} \end{array}$$

f.  $15x + 1 = y$ , solve for x

$$\begin{array}{r} -1 \quad -1 \\ \hline 15x = y - 1 \\ 15 \quad 15 \\ \hline x = \frac{y-1}{15} \end{array}$$

28.  $14n - 8 = 34$

29.  $8 + 3n/12 = 13$

30.  $-4 = (7x - (-1)) / -8$

31.  $2(7 + 3t) = -t$

32.  $4.4s + 6.2 = 8.8s - 1.8$

33.  $2x + b = c$ , solve for x

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## Factoring Trinomials (doing FOIL backwards)

Review:

$$\begin{aligned}
 2d^2 + 15d + 18 &= ( \quad )( \quad ) \leftarrow \text{start with ( )s} \\
 &= (2d \quad )(d \quad ) \leftarrow \text{Figure out 1}^{\text{st}} \text{ term} \\
 &= (2d - 3)(d + 6) \leftarrow \text{Figure out 3}^{\text{rd}} \text{ term} \\
 &= (2d + 3)(d + 6) \leftarrow \text{Figure out + or -} \\
 &= \underbrace{(2d + 3)(d + 6)}_{\text{FOIL}} = 2d^2 + 12d + 3d + 18 \leftarrow \text{Check} \\
 &= 2d^2 + 15d + 18
 \end{aligned}$$

Think of this as  $p^2 + 0p - 25$

34.  $x^2 - 5x - 14 = (x + \underline{\quad})(x - 7)$

35.  $p^2 - 25 = (p + 5)(p \underline{\quad})$

36.  $x^2 + 12y + 32$

37.  $y^2 + 22y + 121$

38.  $48x^2 + 22x - 15$

39.  $16x^2 + 48x + 36$

40.  $9x^2 - 12x + 4$

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