

Name: Answer Key

Date: _____

Polynomial Review #2

HW# 17

1. $(5x^2 - 7x - 4) + (2x^2 + 9x + 7) + (-8x^2 - 2x - 9)$

$-x^2 - 6$

2. Subtract:

$(4x + y - 3) - (6x - 3y + 1)$

$4x + y - 3 - 6x + 3y - 1$

$-2x + 4y - 4$

3. Simplify:

$6a(a^2 + 4a - 2) - 3a$

$6a^3 + 24a^2 - 12a - 3a$

$6a^3 + 24a^2 - 15a$

4. Simplify:

$-20 - (7m - 6)$

$-20 - 7m + 6$

$-7m - 14$

5. Subtract $(5y^2 - 8y + 3)$ from $(7y^2 - 3y - 4)$
goes 1st!

$(7y^2 - 3y - 4) - (5y^2 - 8y + 3)$
 $7y^2 - 3y - 4 - 5y^2 + 8y - 3$

$2y^2 + 5y - 7$

6. Multiply:

a) $(2x - 3)(x + 4)$

$2x^2 + 8x - 3x - 12$

$2x^2 + 5x - 12$

b) $(x - 6)^2$

$(x - 6)(x - 6)$

$x^2 - 6x - 6x + 36$

$x^2 - 12x + 36$

7. Multiply the following by its conjugate and express answer in standard form.

a) $(5 - m)(5 + m)$ *shortcut!*

$25 - m^2$

$-m^2 + 25$

8. Divide:

a) $\frac{a + abc}{a}$

$1 + bc$

b) $\frac{9x^2y - 12xy^2}{xy}$

$9x - 12y$

9. Express in standard form: $5x - x^2 + 3 + x^7$ $\frac{x^7 - x^2 + 5x + 3}{}$

Degree of above polynomial: 7

10. Simplify:

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

$$\boxed{9x^{10}}$$

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

$$\boxed{16x^8y^{12}}$$

c) 5^{-3}

$$\frac{1}{5^3} = \boxed{\frac{1}{125}}$$

d) $6(3^{-3})$

$$\frac{6}{1} \left(\frac{1}{3^3} \right) = \frac{6}{27} = \boxed{\frac{2}{9}}$$

e) $(-2x)^0$

$$\boxed{1}$$

f) $-2x^0$

$$-2(1) = \boxed{-2}$$

11. What is the value of $5^0 + 6^{-2}$?

$$1 + \frac{1}{6^2} = 1 + \frac{1}{36} = \boxed{\frac{37}{36}}$$

12. If the expression $(2y^a)^4$ is equivalent to $16y^8$, what is the value of a ?

$$\boxed{a=2}$$

13. Simplify: a) $(2x^2 - 4x + 1) - 2(x^2 - 3x + 2)$

$$2x^2 - 4x + 1 - 2x^2 + 6x - 4 = \boxed{2x - 3}$$

b) $(6d^8)(-8d^9)(6d)$

$$\boxed{-288d^{18}}$$

14. The expression $3^2 \cdot 3^3 \cdot 3^4$ is equivalent to:

$$\boxed{3^9}$$

15. Simplify the expressions below:

$$a) \frac{(4x^3)^2}{2x} = \frac{16x^6}{2x} = \boxed{8x^5}$$

$$b) 5c^{-3}d^{-6}e^2 \cdot -2c^4d^2e^{-2} = -10c^1d^{-4}e^0 = \boxed{\frac{-10c}{d^4}}$$

$$c) \frac{a^2b^3c^5}{a^5b^2c^5}$$

$$a^{-3}b^1c^0$$

$$\boxed{\frac{b}{a^3}}$$

$$d) \frac{-30x^2y^{-5}z^4}{15x^5y^4z^2}$$

$$-2x^{-3}y^{-9}z^2$$

$$\boxed{\frac{-2z^2}{x^3y^9}}$$

Word Problems:

16. For a square whose side is $(x - 5)$ feet, find the:

a) perimeter

$$\begin{array}{l} x-5 \\ x-5 \\ x-5 \\ x-5 \end{array} \quad \text{OR} \quad \boxed{4(x-5)} \quad \boxed{4x-20}$$

b) area

$$\begin{aligned} A &= S^2 = (x-5)^2 \\ &= (x-5)(x-5) \\ &= x^2 - 5x - 5x + 25 \\ &= \boxed{x^2 - 10x + 25} \end{aligned}$$

17. The side of a hexagon (6 sides) is represented by $4x - 3$. How would you represent the perimeter of the hexagon in terms of x ?

$$6(4x-3) = \boxed{24x-18}$$

18. The lengths of the sides of a triangle are $x - y$, $x + y$, and $3x + y$. Find the perimeter of the triangle in terms of x and y .

$$\begin{array}{l} x-y \\ x+y \\ \underline{3x+y} \end{array} \quad \boxed{5x+y}$$

19. The area of a rectangle is $10x^2 - 20x$. Find the width given the length is $5x$.

$$\frac{A}{L} = \frac{L \cdot W}{L}$$

$$W = \frac{A}{L}$$

$$W = \frac{10x^2 - 20x}{5x}$$

$$\boxed{W = 2x - 4}$$

***20. The perimeter of a rectangle is represented by $24x - 8$. If the length is represented by $3x + 5$, how would you represent the width in terms of x ?

$$\begin{array}{r} 3x+5 \\ + 3x+5 \\ \hline 6x+10 \end{array}$$

$$\begin{array}{r} (24x-8) - (6x+10) \\ 24x-8 - 6x-10 \\ \hline 18x-18 \end{array}$$

$$\frac{18x-18}{2}$$

$$\boxed{9x-9}$$

Identify the property illustrated by each example:

21. $3 + 4 = 4 + 3$ Commutative Prop of Addition

22. $(2 \cdot 3) \cdot 4 = 2 \cdot (3 \cdot 4)$ Associative Prop of mult.

23. $e(f + g) = e(f) + e(g)$ Distributive Prop

24. $(8)(5) = (5)(8)$ Commutative Prop of mult.

25. $5(4 - 9) = 5(4) - 5(9)$ Distributive Prop.

* 26. $1 + (2 + 3) = (2 + 3) + 1$ Commutative Prop of Addition

* Remember to check your answers + make corrections in a different color.