Lesson 5.3 Worksheet

Name: _____

Find the sum or difference.

1.) $(4y^2 + 9y - 5) - (4y^2 - 5y + 3)$

2.) $(3x^3 + x) + (4x^3 - 2x^2 + 7x + 10)$

3.) $(2a^2 - 8) - (a^3 + 4a^2 - 12a + 4)$

4.) $(3y^2 - 6y^4 + 5 - 6y) + (5y^4 - 6y^3 + 4y)$

5.) $(x^4 - x^3 + x^2 - x + 1) + (x + x^4 - 1 - x^2)$

6.) $(4t^3 - 11t^2 + 4t) - (-7t^2 - 5t + 8)$

Find the product of the polynomials.

7.) $5x^2(6x + 2)$

8.) $(3z + 1)(z - 3)$

9.) $(2a - 3)(a^2 - 10a - 2)$

10.) $(4x - 1)(-2x - 7)(-5x - 4)$

11.) $(x + 5)(x - 5)$

12.) $(w - 9)^2$

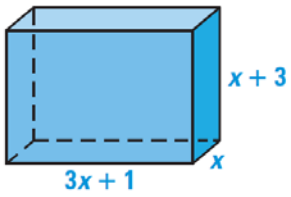
13.) $(2c + 5)^2$

14.) $(y+4)^3$

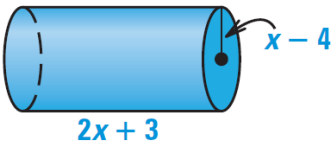
15.) $(3t-4)^3$

Write the figure's volume as a polynomial in standard form.

16.) $V = \ell wh$



17.) $V = \pi r^2 h$



Evaluate the function for the given value of *x* using <u>both</u> direct and synthetic substitution.

18.) $g(x) = -9x + 7x^3 - 4x^4 + 10 - 3x^2;\ x = 2$

Describe the end behavior of the graph of the polynomial function by completing the statements. (Hint: Sketch a general picture of the graph to help).

19.) $f(x) = -\frac{1}{2}x^9 + 5x^6 + \frac{2}{3}x^4 - 10$

$\boldsymbol{f(x) \to \_\_\_\_ \text{ as } x \to -\infty}$

$\boldsymbol{f(x) \to \_\_\_\_ \text{ as } x \to +\infty}$

20.) $f(x) = x^{50} + 1$

$\boldsymbol{f(x) \to \_\_\_\_ \text{ as } x \to -\infty}$

$\boldsymbol{f(x) \to \_\_\_\_ \text{ as } x \to +\infty}$