REVIEW Polynomial Operations and Graphing   Name: _____

1. Find the first 8 rows of Pascal's Triangle and use it to expand $(2a+5)^6$.

Find the specified term of each expansion

2) $(a + 2)^4$; 3rd term

3) $(3x+4)^5$; 5th term

Find each product.

4) $(3c^2 - 6c + 2)(4c^2 - 6c + 14)$

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

6) Mr. Silva manages a manufacturing plant. From 1990 through 2005 the number of units produced (in thousands) can be modeled by $N(x) = 0.02x^2 + 0.2x + 3$. The average cost per unit (in dollars) can be modeled by $C(x) = -0.004x^2 - 0.1x + 3$. Write a polynomial $T(x)$ that can be used to model the total costs and evaluate $T(5.2)$.

Use long division to find the quotient and the remainder.

7) $(-y^2 + 4y^3 + 25) \div (2y^2 - 3)$

8) $(15x^4 + 8x - 12) \div (3x^2 + 1)$

9) Write an expression that represents the area of the top face of a cylinder when the height is $x + 2$ and the volume of the cylinder is $x^3 - x^2 - 6x$. $A = \dfrac{V}{h}$.

Factor the following polynomials.

10) $2x^3 + x^2 + 8x + 4$

11) $64x^3 - 8$

12) $54x^3 + 250y^6$

13) Write the simplest polynomial with roots –1, 1/2 multiplicity of 3, and 4. What is the degree of the polynomial?

14) Write the simplest polynomial with a double root at x = 2 and a triple root at x = 3. What is the degree of the polynomial?

15) Describe the end behavior of an even function whose leading coefficient is negative.

16) Describe the end behavior of an odd function whose leading coefficient is positive.

17) Find the Area of the shaded region.

18) x = -4

x = -0.5

x = 2
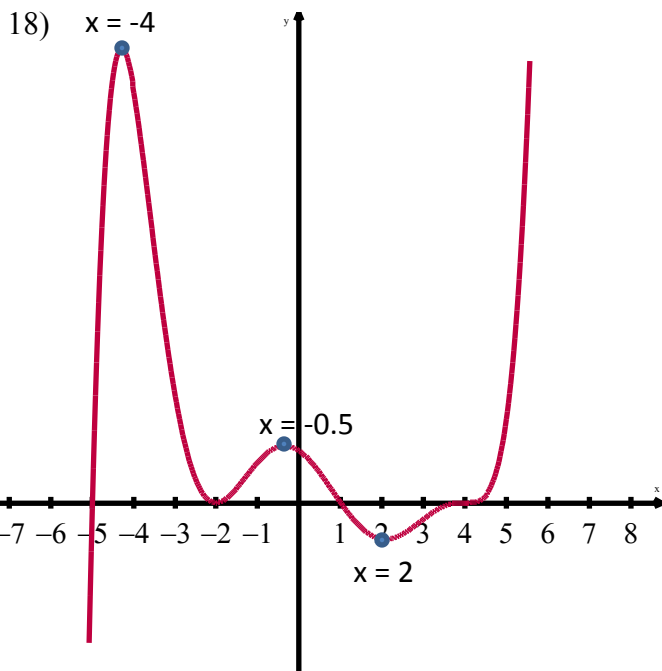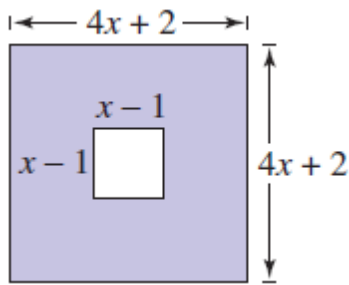
Approximate Roots with multiplicity: _____

_____

Increasing: _____

Decreasing: _____

Relative Maximum(s): _____

Relative Minimum(s): _____

End behavior: _____

Domain: _____Range: _____

Odd or even function: _____ Degree: _____

Sign of leading coefficient: _____

Equation of the function written in factored form:

_____