Accelerated Geom/Alg 2 **Name_____**
Polynomials #2 Test Review

Find all of the zeroes for the following polynomials. Leave all answers in simplest radical form. Show the process for finding the zeros (synthetic division).

1. $f(x) = x^4 - x^3 - 22x^2 + 16x + 96$

2. $g(x) = 2x^4 + x^3 + 5x^2 + 4x - 12$

3. $y = 3x^3 + 19x^2 + 19x - 5$

4. $y = x^4 - x^2 - 600$

5. $4x^5 - 68x^4 - 20x^3 + 612x^2 - 144x = 0$

6. List all **possible** rational roots for $h(x) = 5x^3 + 3x^2 - 17x + 45$

7. Write the function whose roots are: 6, 10, -5, and -8

8. Write the function whose zeroes are: 5i, 3, -7i

9. Identify the following for each of the polynomials given.

$$f(x) = -4x^4 - 5x^2 + x + 7$$

Degree of polynomial: _____

Name by the degree of the polynomial: _____

# of terms: _____

Name of the polynomial by the number of terms: _____

Leading coefficient: _____ Symmetry: _____

End behavior: $as\ x \to -\infty,\ f(x) \to$ _____

$as\ x \to \infty,\ f(x) \to$ _____

10. $f(x) = -2x(x-6)^2(x+7)(x-1)$

Degree of the polynomial: _____

Name by the degree of the polynomial: _____

Leading coefficient: _____ Symmetry: _____

List the zeroes of the polynomials: _____

End behavior: $as\ x \to -\infty,\ f(x) \to$ _____

$as\ x \to \infty,\ f(x) \to$ _____

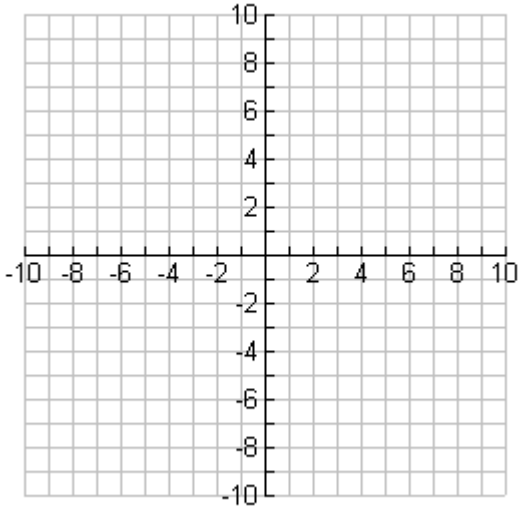
11. Sketch the graph of the polynomial function with the following characteristics:

Zeroes: -6, -2, 2,

Intervals of increase: $[-\infty,-4],[0,\infty]$

Intervals of decrease: $[-4,0]$

Determine the type of symmetry based off of the graph.



12. Write the equation of the function that opens down and whose roots are -3, -1, 2, and 6.

13. Based off of the equation $h(x) = 2x^4 - 12x^3 - 70x^2 + 264x + 160$, name the polynomial from its degree, identify the zeroes, end behavior, determine the type of symmetry, the intervals of increase and decrease, and the local and absolute maximums and minimums (if there are any, if not, write none).

    Name of Polynomial: _____

    Zeroes: _____

    Type of Symmetry: _____

    Relative Maximum(s): _____

    Relative Minimum(s): _____

    Absolute Max/Min: _____

    Intervals of increase: _____

    Intervals of decrease: _____

    End behavior: $as\ x \to -\infty,\ \ f(x) \to$ _____
    $as\ x \to \infty,\ \ f(x) \to$ _____

Apply the identities to the following polynomials.

14. $36x^2 - 25y^2$

15. $(3x + 7)^3$

16. $(4 - 5y)^2$

17. $1331x^3 - 343y^3$

18. $256x^4 + 225y^2$

19. $(2x + 5)^2$

20. $27x^3 + 8y^6$

21. $(x - 2y)^3$