Name_____

Trig – Unit 1 – Review for Mini Celebration of Knowledge

For 1 – 4, state the Vertex and Axis of Symmetry for each function. State if the vertex is a maximum or minimum.

1) $g(x) = -x^2 - 6x - 5$

2) $h(x) = -\frac{1}{2}(x+5)(x-1)$

3) $y - 4 = 2(x+5)^2 + 3$

4) $f(x) = x^2 - 81$

For 5 – 7, state the domain and range for the function

5) $f(x) = -(2x+3)^2 + 6$

6) $h(x) = 4x^2 - 4x + 1$

7) $g(x) = 3(x+2)(x-5)$

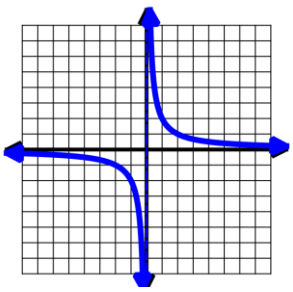
For 8 – 13, state whether each is a polynomial. Write yes or no.

8) $h(x) = \frac{1}{2}x^{11} - 6x^7 + x^5$

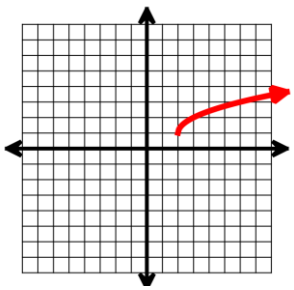
9) $g(x) = 2\sqrt[3]{x-5} + 6$

10) $f(x) = 3^{-6} + x$

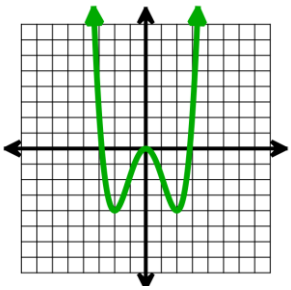
11)



12)



13)



For 14 – 16, state the end heavier of each function using either interval or end behavior notation.

14) $f(x) = 1.2x^4 - x^3 - 5$

15) $g(x) = -x^3 - 2x + 5$

16) $-130x^3 - 2x^2 + 3x^5 - 3$

For 17 – 18, state the multiplicity for the following zeros. Then state if those zeros cross the x-axis or bounce.

17) $f(x) = x^3(x-5)^2(x-1)$

18) $y = (x+1)(x-4)(x-1)^2$

For 19 – 24, find all the zeros for each of the following functions – work must be shown to receive credit. Simply putting it into the calculator, and writing the zeros will receive no credit for a correct answer.

19) $f(x) = x^3 - 4x$

20) $g(x) = x^3 + 5x^2 - 4x - 20$

21) $h(x) = x^3 + 11x^2 + 39x + 45$

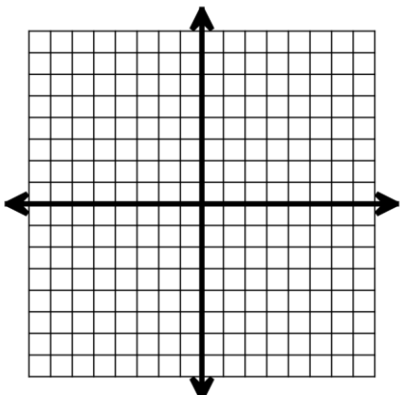
22) $y = 3x^3 - 10x^2 - 13x + 20$

23) $f(x) = x^4 - 22x^2 - 75$

24) $g(x) = x^3 + x^2 + 4x + 4$

<u>For 25 – 26, graph the following functions. Label the *x*-intercepts, *y*-intercepts, domain, range, and end behavior.</u>

25) $f(x) = -6x^4 + 9x^3$



D: _____

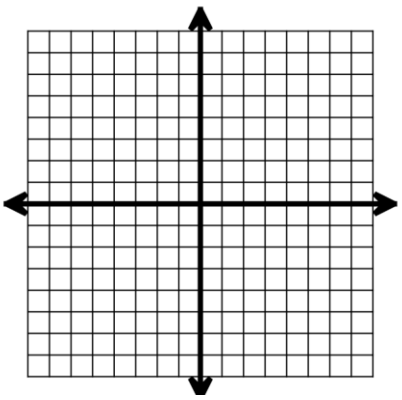
R: _____

x – int: _____

y – int: _____

End: _____

26) $g(x) = x^3 + 2x^2 - 5x - 6$



D: _____

R: _____

x – int: _____

y – int: _____

End: _____

For 27 – 30, use long or synthetic division to divide.

27) $\frac{10x^4-24x^3-15x^2-45x-27}{2x^2+6x+3}$

28) $\frac{-4x^3-28x^2-21x+18}{x+6}$

29) $\frac{-4x^4+x^2-9x^3+21-x+x^5}{x+2}$

30) $(x^4+3x^2+55)\div(x-1)$