Secondary Math 3

Name _____ Class _____

Group Assessment 8: Graphing Polynomials (No Calculator)

Dividing Polynomials

Divide the following polynomials.

1. $(2x^4 - 9x^3 + 5x^2 + 7x + 8) \div (x - 3)$

2. $(x^4 - 6x^3 - 5x^2 + 63x - 9) \div (x + 3)$

Is d(x) a factor of f(x)? Why or why not?

3. $f(x) = x^4 - 5x^3 + 15x^2 - 7x + 9$
   $d(x) = x + 1$

4. $f(x) = 5x^4 - x^3 + 6x^2 - 10$
   $d(x) = x - 1$

5. What does it mean for a polynomial to be a factor of another? Explain.

Zeros of Polynomials and Graphing Polynomials

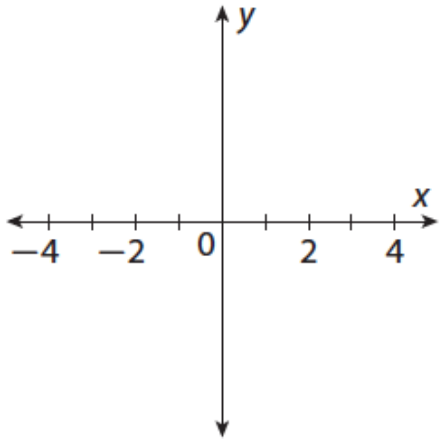
Use the following function for numbers 6-8.

$f(x) = (x-2)^3(x-1)\ (x+4)^2$

6. Find the zeros and multiplicity.

Zeros	Multiplicity	Intersection

8. Sketch a graph of the function f(x):



7. Left End Behavior: $x \to -\infty, y \to$ _____

Right End Behavior: $x \to \infty, y \to$ _____

□

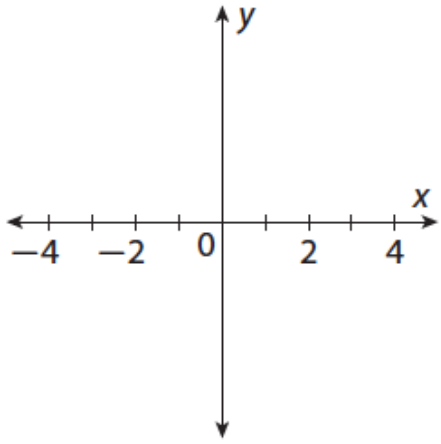
Use the following function for numbers 9-12.
$f(x) = 2x^4 - 12x^3 - 14x^2$

9. Write *f(x)* in factored form.

10. Find the zeros of *f(x)* and the multiplicity.

Zeros	Multiplicity	Intersection

12. Sketch a graph of the function f(x):



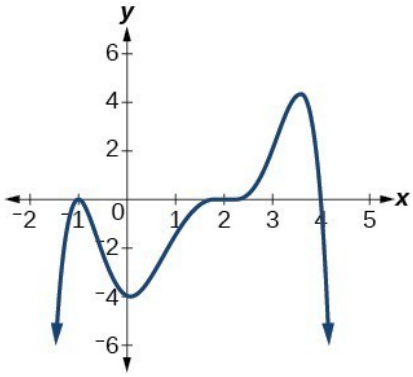
11. Left End Behavior: Right End Behavior:

$x \to -\infty, y \to$ _____ $x \to \infty, y \to$ _____

□

13. Write a function in factored form for the graph to the right.

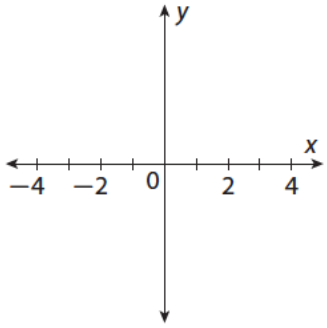
$f(x) =$



14. Write an equation for a polynomial function in factored form with the following requirements (use the graph if needed):

The graph must have negative end behavior
You must include at least one zero with each type of multiplicity

$f(x) =$



15. The graph of *f(x)* is given, how would the graph change if there was another zero at $x = -5$?