Chapter 6 Checkpoint Name: _____

1. Describe the End behavior of the function $f(x) = -6x^3 + x^3 + 4x + 2$

As x → –∞, f(x) → _____

As x → +∞, f(x) → _____

Sketch the graph and write the function in standard form.

2. $y = x(x - 4)(x + 3)$

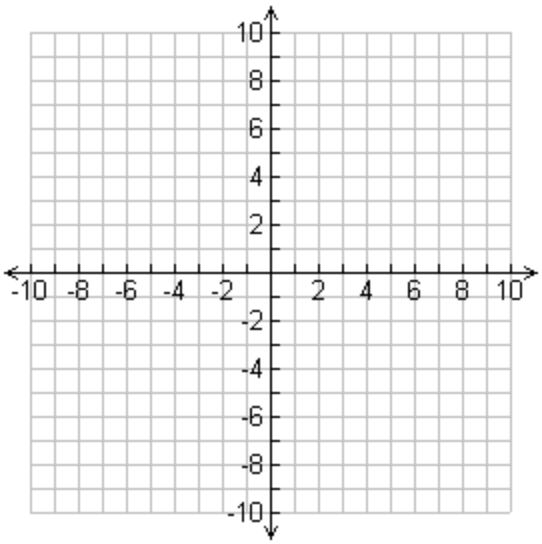
a) zeros:_____

b) End Behavior

As x → –∞, f(x) → _____

As x → +∞, f(x) → _____

c) Standard Form



3. $y = (x - 2)^2(x + 3)^2$

a) Zeros:_____(mult. Of _____)

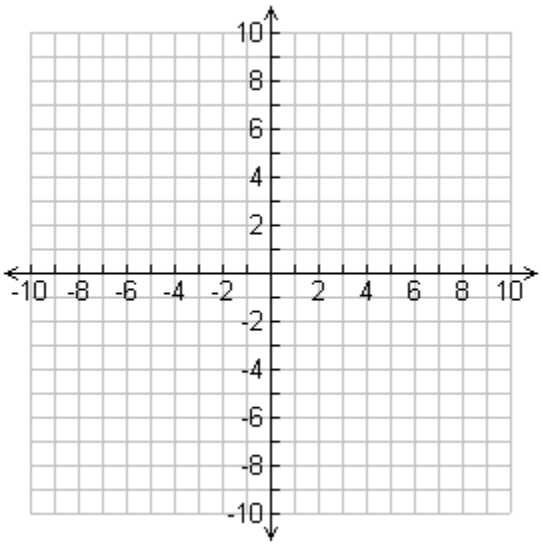
_____(mult. Of _____)

b) End Behavior:

As x → –∞, f(x) → _____

As x → +∞, f(x) → _____

c) Standard Form:



Write the Equation in Factored and Standard Form and Sketch

4. Given the zeros -1, -3, and 2, write the function in factored and standard form.

a) Factored Formula:_____

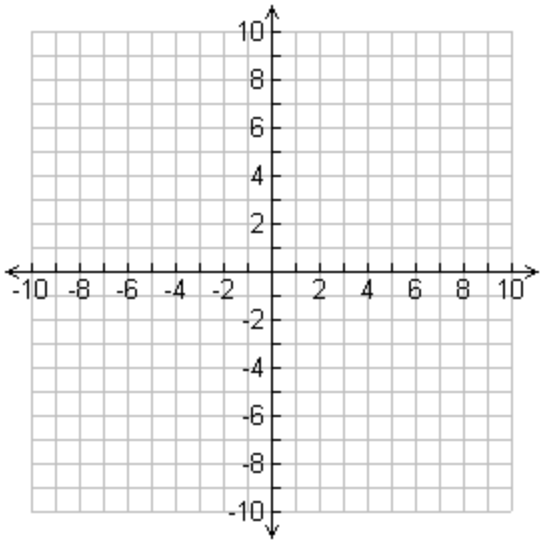
b) y-intercept:_____

c) End Behavior

As x → –∞, f(x) → _____

As x → +∞, f(x) → _____

d) Standard Form



Simplify and **classify**.

5. $(11x^2 - 2x + 3) - (7x^2 + 4x - 1)$

6. $(6x^4 + 3x^2 - 1) + (x^4 - x)$

Multiply.

7. $(2x^2 + 4x - 3)(x^2 - 6x + 2)$

8. $(x - 5)^3$

Divide.

9. $(x^4 - 8x^3 + 12x^2 - 11x) \div (x - 1)$

10. $(x^3 + 8) \div (x + 2)$

11. $(3x^2 + 7x - 20) \div (x + 4)$

12. $(2x^4 - 3x^3 - 4x - 12) \div (2x - 1)$

Completely factor.

13. $x^4 - 4x^2 - 20$

14. $x^3 - 10x^2 + 21x$

15. $2x^4 - 19x^2 + 9$

16. $2x^4 + 12x^3 + 10x^2$

State if the given binomial is a factor of the polynomial. (Hint is R = 0?) (Hint Hint…use long division!!!)

17. $(3m^2 + 20m + 25) \div (m + 5)$

18. $(10b^2 + 15b - 9) \div (b + 2)$