Algebra 2 **Name _____**
Chapter 5 Review (5.1 – 5.3)

Simplify.

1. $\left(-4a^4bc^3\right)^3$	**2.** $\frac{6x^2}{y^3}\cdot\frac{y^{-2}x^3}{9x^2}$
3. $\frac{(3xy^{-3})^{-2}}{6x^5y}$	**4.** $\left(\frac{2}{3r^{-2}t^3w^{-6}}\right)^2$
5. $(m^4n^6)^4(m^3n^2p^5)^6$	**6.** $\frac{-10t^4pr}{-5t^2p^3r}$
7. $(-4x^2-x)-(2x+4+5x^2)$	**8.** $(x-1)(x^2-2x+4)$
9. $(2x-3)^2$	**10.** $-3x^2y(4xy^3-5x^2y^2)$

11. Simplify.

$$\frac{60a^2b^3 - 48b^4 + 36a^5b^2}{12ab^2}$$

Divide using synthetic division:

12. $(m^2 - 3m - 7) \div (m + 2)$

13. $(4x^4 - 8x^3 - 12x - 33) \div (x - 3)$

Divide by using long division (show your work!):

14. $(2x^2 - 5x - 3) \div (x - 3)$

15. $(-6x^3 + 5x^2 + 8x - 12) \div (2x - 3)$

16. The area of a rectangle is $6y^3 + 13y^2 - 10y - 24$ **square feet. The length of the rectangle is** $y + 2$ **feet. What is the width of the rectangle?**

State the degree and leading coefficient of each polynomial in one variable. If it is not a polynomial, explain why.

17. $-5x^5+3x^3-8$	**18.** $18-3y+5y^2+7y^3$	**19.** $2r-r^2+r^{-2}$

Evaluate 5p(2) and p(3a).

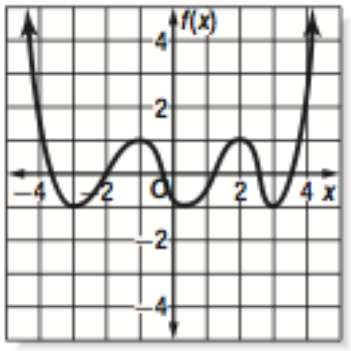
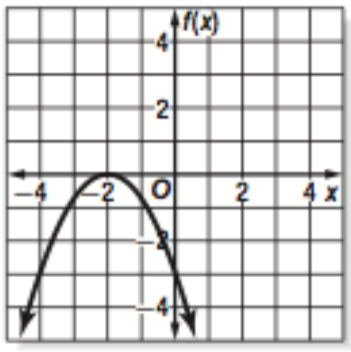
20. $p(x)=-x^2+2x$	**21.** $p(x)=3x+x^3$

22. For each graph,

a. describe the end behavior,

b. determine whether it represents an odd-degree or an even-degree function, and

c. state the number of real zeros

a. 	**b.** 	**c.**