Alg 2 Unit 3 HW 8 Name: _____ Period: _____

1. Solve. $\frac{5x}{x-4} - \frac{6x+16}{2x-8} = \frac{-3}{2}$

2. Given the following functions, answer the questions below:

$f(x) = \sqrt{2x-4} - 3$ $g(x) = \frac{x-5}{2} - 7$ $h(x) = \frac{(x+3)^2+4}{2}$

a. Find $f(g(39))$ b. Find $g^{-1}(x)$ c. Prove that $f(x)$ and $h(x)$ are inverses

3. Solve using common bases or log properties.

a. $\left(\frac{1}{8}\right)^{2x} = \left(\frac{1}{16}\right)^{x+2}$ b. $log_7 11 + log_7 x = log_7(x^2 + 24)$ c. $4^{5x} = 81$

4. In 1926, the attendance at a Chicago Blackhawks game was 3318. Since then, attendance has been increasing at an average rate of 2% each year.

a. How many people were in attendance in 2014?

b. When was attendance approximately 8000?

5. Find the set of equations that are equivalent. _____

a. $y = (x-4)(x+6)$

b. $y = (x-1)^2 + 25$

c. $y = x^2 + 2x - 24$

d. $y = 2x^2 + 8x - 24$

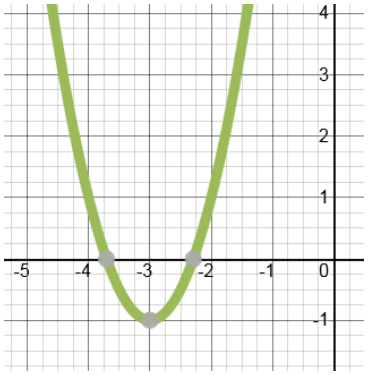
e. $y = (x+4)(x-6)$

f. $y = (x+1)^2 - 25$

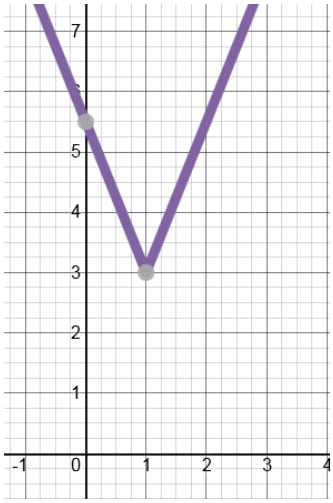
Match each equation with the appropriate graph.

A. $y = -2(x+3)^2 - 1$	B. $y = \frac{1}{2}(x+3)^2 - 1$	C. $y = -\sqrt{x-2} + 4$	D. $y = \frac{5}{2}\lvert x-1\rvert + 3$
E. $y = 4\sqrt{x-5} - 2$	F. $y = \frac{5}{2}\lvert x+1\rvert - 3$	G. $y = -2x + 7$	H. $y = 2(x+3)^2 - 1$

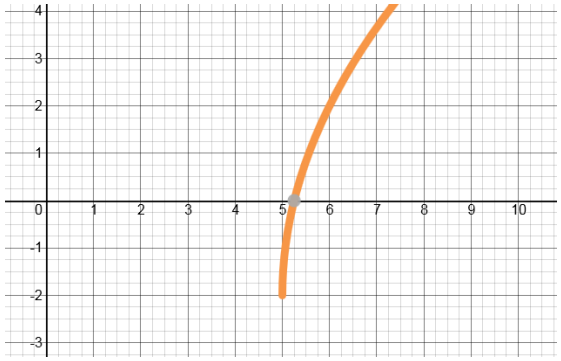
6. _____



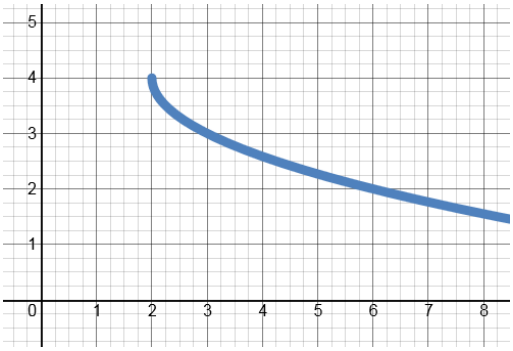
7. _____



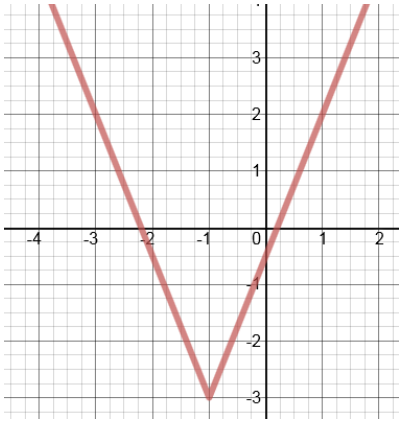
8. _____



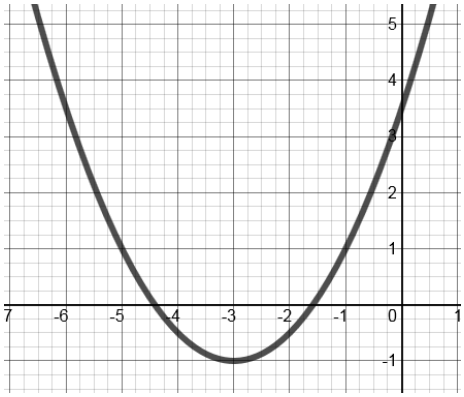
9. _____



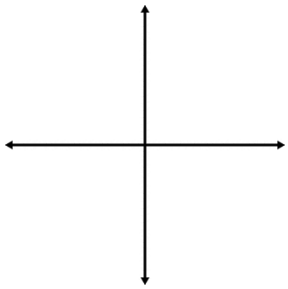
10. _____



11. _____



12. Sketch a polynomial with a degree of 5, 3 real roots, and a negative leading coefficient.



13. Perform the indicated operation, put the resulting polynomial in descending order, and then fill in the blanks below.

$$(3x^2 - 9 + 7x)(8 + 2x^2 - 4x)$$

Answer in descending order: _____ Degree: _____Leading coefficient: _____

Classify your answer: (circle one) Monomial Binomial Trinomial Polynomial

Error Analysis

For questions 14& 15: Circle the error in each problem and explain how to correct the error.

14. Divide. $3x^3 + 4x^2 + 7x + 22 \div (x - 2)$

2	3	4	7	22
		6	−4	22
	3	−2	11	0

Answer: $3x^2 - 2x + 11$

15. Simplify. $(-6 + 7i)(2 - 9i)$

$$-12 + 54i + 14i - 63i^2$$

$$-12 + 54i + 14i - 63$$

$$-75 + 68i$$