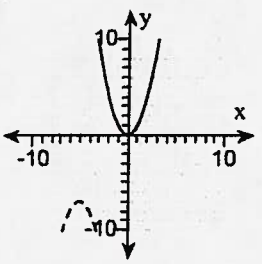
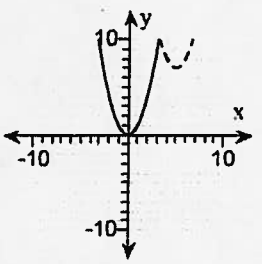
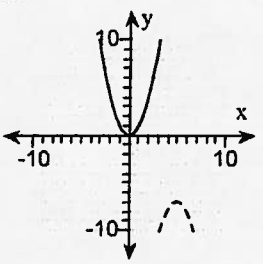
Student: _____	**Instructor:** [redacted]	**Assignment:** Test # 2-B
Date: _____	[redacted]	
Time: _____	**Course:** Spring2012_Math1320 - Section_12PM	
	Book: [redacted]	

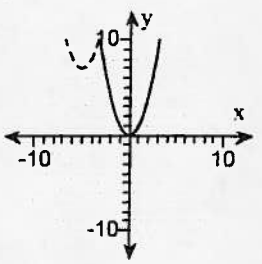
1. Begin by graphing the standard quadratic function $f(x) = x^2$. Then use transformations of this graph to graph the given function.

$h(x) = -(x-5)^2 - 7$

A. 

B. 

C. 

D. 

2. Given functions f and g, find $f - g$.

$f(x) = 2x - 9, g(x) = 9x - 7$

A. $7x + 2$

B. $-7x - 2$

C. $11x - 16$

D. $-7x - 16$

3. For the given functions f and g, find the indicated composition.

$f(x) = -5x + 7, g(x) = 4x + 8; (g \circ f)(x)$

A. $-20x + 47$

B. $20x + 36$

C. $-20x + 36$

D. $-20x - 20$

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4. Determine which two functions are inverses of each other.

$f(x) = \frac{x-5}{3}$, $g(x) = 3x - 5$, $h(x) = \frac{x+5}{3}$

A. None

B. f(x) and h(x)

C. f(x) and g(x)

D. g(x) and h(x)

5. Find the inverse of the one-to-one function.

$f(x) = \frac{5x+2}{5}$

A. $f^{-1}(x) = \frac{5}{5x+2}$

B. $f^{-1}(x) = \frac{5}{5x-2}$

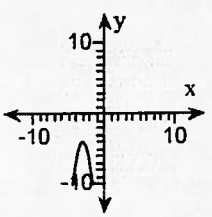
C. $f^{-1}(x) = \frac{5x-2}{5}$

D. $f^{-1}(x) = \frac{5x+2}{5}$

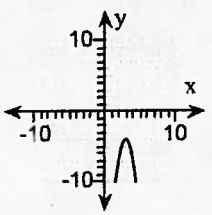
6. Use the vertex and intercepts to sketch the graph of the quadratic function.

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

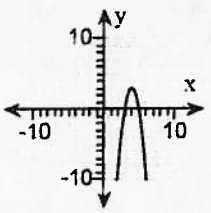
A.



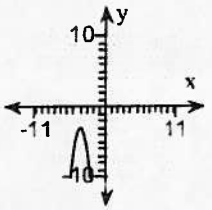
B.



C.



D.



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7. Determine whether the given quadratic function has a minimum value or maximum value. Then find the coordinates of the minimum or maximum point.

$f(x) = -x^2 + 2x - 9$

A. maximum; $(1, -8)$

B. minimum; $(-8, 1)$

C. minimum; $(1, -8)$

D. maximum; $(-8, 1)$

8. Find the degree of the polynomial function.

$f(x) = -3x + 4x^5$

A. 1

B. 4

C. -3

D. 5

9. Determine whether the graph of the polynomial has y-axis symmetry, origin symmetry, or neither.

$f(x) = x^3 - 2x$

A. origin symmetry

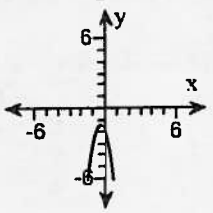
B. y-axis symmetry

C. neither

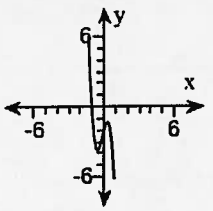
10. Use the Leading Coefficient Test to determine the end behavior of the polynomial function. Then use this end behavior to match the function with its graph.

$f(x) = 8x^3 - 3x^2 - 4x - 2$

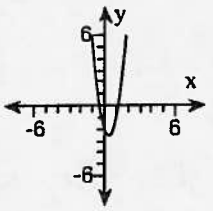
○A. falls to the left and falls to the right



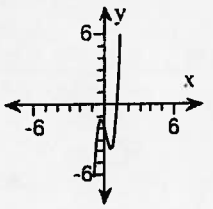
○B. rises to the left and falls to the right



○C. rises to the left and rises to the right



○D. falls to the left and rises to the right



11. Find the zeros for the polynomial function and give the multiplicity for each zero. State whether the graph crosses the x-axis or touches the x-axis and turns around, at each zero.

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

○A. -1, multiplicity 1, touches the x-axis and turns around;
1, multiplicity 1, touches the x-axis and turns around;
-3, multiplicity 1, touches the x-axis and turns around

○B. -1, multiplicity 1, crosses the x-axis;
1, multiplicity 1, crosses the x-axis;
-3, multiplicity 1, crosses the x-axis.

○C. 3, multiplicity 1, crosses the x-axis;
1, multiplicity 1, crosses the x-axis;
-3, multiplicity 1, crosses the x-axis.

○D. 1, multiplicity 2, touches the x-axis and turns around;
-3, multiplicity 1, crosses the x-axis.

12. Divide using long division.

$(10x^3 + 14x^2 - 27x + 9) \div (5x - 3)$

○A. $2x^2 - 3$

○B. $x^2 + 4x - 3$

○C. $x^2 - 4x + 3$

○D. $2x^2 + 4x - 3$

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13. Divide using synthetic division.

$(x^2 + 10x + 20) \div (x + 6)$

A. $x + 4 + \frac{4}{x+6}$

B. $x + 4 - \frac{4}{x+6}$

C. $\frac{x+4}{x+6}$

D. $x + 5$

14. Use synthetic division to divide $f(x) = x^3 - 7x^2 + 2x + 40$ by $x - 5$. Use the result to find all zeros of f.

A. $\{-5, 4, -2\}$

B. $\{5, -4, 2\}$

C. $\{5, 4, -2\}$

D. $\{-5, -4, 2\}$

15. Use the Rational Zero Theorem to list all possible rational zeros for the given function.

$f(x) = x^5 - 6x^2 + 2x + 15$

A. $\pm 1, \pm\frac{1}{5}, \pm\frac{1}{3}, \pm\frac{1}{15}$

B. $\pm 1, \pm 5, \pm 3, \pm 15$

C. $\pm 1, \pm\frac{1}{5}, \pm\frac{1}{3}, \pm\frac{1}{15}, \pm 5, \pm 3, \pm 15$

D. $\pm 1, \pm 5, \pm 3$

16. Find an nth degree polynomial function with real coefficients satisfying the given conditions.

n = 3; 3 and i are zeros; f(2) = 30

A. $f(x) = -6x^3 + 18x^2 - 6x + 18$

B. $f(x) = 6x^3 - 18x^2 - 6x + 18$

C. $f(x) = 6x^3 - 18x^2 + 6x - 18$

D. $f(x) = -6x^3 + 18x^2 + 6x - 18$

17. Find the vertical asymptotes, if any, of the graph of the rational function.

$$g(x) = \frac{x}{x^2 - 9}$$

A. $x = 3, x = -3, x = 0$

B. $x = 3$

C. $x = 3, x = -3$

D. no vertical asymptote

18. Find the horizontal asymptote, if any, of the graph of the rational function.

$$f(x) = \frac{8x}{2x^2 + 1}$$

A. $y = \frac{1}{4}$

B. $y = 0$

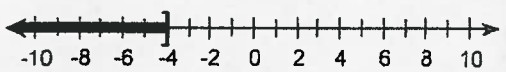
C. $y = 4$

D. no horizontal asymptote

19. Solve the polynomial inequality and graph the solution set on a number line. Express the solution set in interval notation.

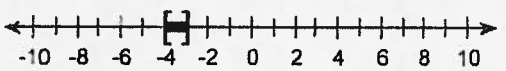
$x^2 + 7x + 12 \geq 0$

○A. $(-\infty, -4]$

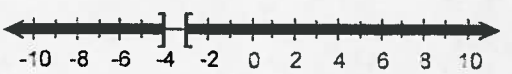


○B. $[-3, \infty)$

○C. $[-4, -3]$



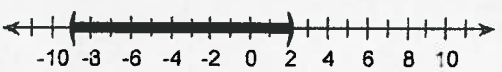
○D. $(-\infty, -4] \cup [-3, \infty)$



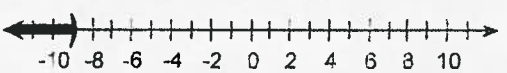
20. Solve the rational inequality and graph the solution set on a real number line. Express the solution set in interval notation.

$$\frac{x-2}{x+9} > 0$$

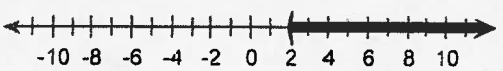
○A. $(-9, 2)$



○B. $(-\infty, -9)$



○C. $(2, \infty)$



○D. $(-\infty, -9)$ or $(2, \infty)$