Advanced Algebra – Exam Review – Chapter 1 Name _____

Date _____

1. Solve.

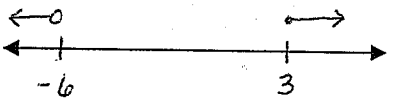
$$\frac{x+1}{2} + \frac{x-2}{3} = \frac{2}{3}$$

2. Solve.

$\frac{1}{2}(x+3) - \frac{3}{4}(x-2) = -2$

3. Graph: $-3 < x \leq 4$

4. Write an inequality that represents the graph.



5. Solve. (See example 2 on p. 34)

$2|2x - 1| - 3 = 13$

6. Solve. (See example 4 on p. 35.)

$|3x + 2| > 14$

7. Solve. (Use a number line to determine the solution.)

$-3x > 12$ and $\frac{1}{2}x > -1$

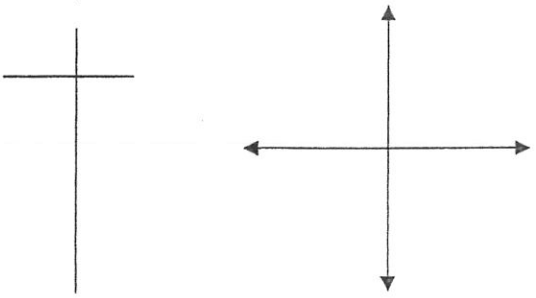
8. What is the solution of $\frac{1}{2}x - 4 > 0$ and $\frac{1}{2}x + 1 < 0$

a. all real numbers
b. $x > 8$
c. $-2 < x < 8$
d. empty set

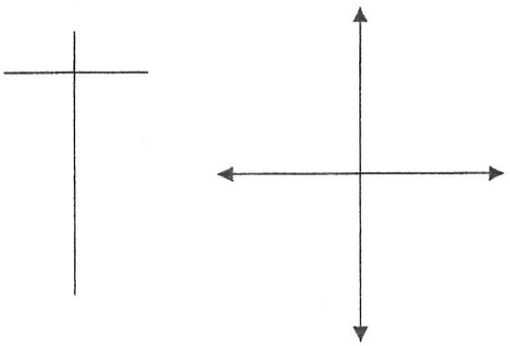
Advanced Algebra – Exam Review – Chapter 2 Name _____

1. State the vertex of
   $y = |x + 2| - 7$

2. Make a T-chart and graph:
   $y = |x - 1| + 3$



3. Make a T-chart and graph:
   $y < |x| + 1$



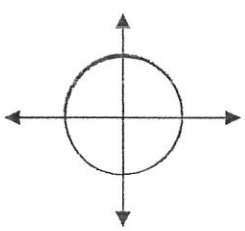
4. Write an equation for an absolute value function that translates 3 units to the right and 8 units up from the parent graph.

5. Write an equation of a line in slope-intercept form that has a slope of $\frac{1}{4}$ and contains (-8,3)

6. Write an equation of a line in slope-intercept form that contains (5,6) and (4,8).

7. If m =10, then the parallel slope is _____ and the perpendicular slope is _____

8. Explain why or why not the graph is a function.



Advanced Algebra Exam Review #1 Name _____

Simplify.

1. $(6 + 3i) + (4 - 5i)$

2. $(3i)(-8i)$

3. $(-2 - 5i) - (7 + 4i)$

4. $(3 + 3i)(2 - 5i)$

5. $6 + \sqrt{-16}$

Factor completely.

6. $6x^2 + 18x$

7. $3x^2 - 12x + 3$

8. $x^2 - 12x + 24$

9. $t^2 + t - 20$

10. $x^2 - 64$

11. $81a^2 - 25b^2$

12. $x^4 - 36$

13. $5x^2 + 11x - 12$

Solve by factoring.

14. $16x^2 - 81 = 0$

15. $x^3 - 4x^2 = 45x$

Solve by using the Quadratic Formula. Round the solutions to the nearest hundredth.

16. $2x^2 = 5x + 9$

Find the discriminant.

17. $5x^2 - 3x + 1 = 0$

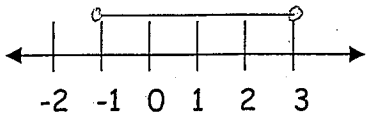
18. Complete the chart. (See p. 288.)

Value of the discriminant	Type & # of Solutions for $ax^2 + bx + c = 0$	Sketch a graph to illustrate the the solutions

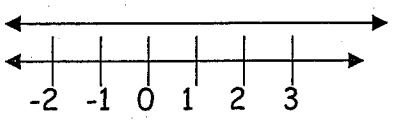
Advanced Algebra – Semester I Exam Review #2 Name _____

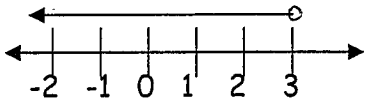
Multiple Choice.

_____1. Determine which graph represents the solution of $|x - 1| < 2$

a. 

b. 

c. 

d. 

_____2. Find the slope of a line containing (-5, 6) and (-1, 8)

a. $-\frac{1}{2}$
b. $\frac{1}{2}$
c. -7/3
d. 2

_____3. Determine the vertex of $y = |x - 4| + 7$

a. (7, 4)
b. (4, 7)
c. (-4,7)
d. (4, -7)

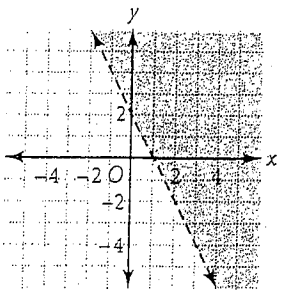
_____4. Determine the axis of symmetry for $y = |x + 9| - 1$

a. $x = -1$
b. $x = 9$
c. $x = -9$
d. $x = 1$

_____5. Find the solution to $|5x - 10| - 5 = 15$

a. $x = -6$
b. $x = -2$
c. $x = 6$ or $x = -2$
d. $x = -6$ or $x = 2$

_____6. Which inequality does the graph represent?



a. $y \geq -2x + 2$
b. $y > 2x + 2$
c. $y > -2x + 1$
d. $y > -2x + 2$

_____7. Which equation represents a graph that translates 3 units to the left and 4 units down from the parent graph?

a. $y = |x - 3| - 4$
b. $y = |x + 3| - 4$
c. $y = |x - 4| - 3$
d. $y = |x + 4| - 3$

_____8. Find the axis of symmetry for $y = 3x^2 + 8x - 5$

a. $x = -4$
b. $x = 4$
c. $x = 4/3$
d. $x = -4/3$

_____9. If the discriminant is greater than zero, then there is/are

a. one real solution
b. two real solutions
c. two imaginary solutions
d. no solutions

10. **Write a system of equations to represent the following.**
Last year the volleyball team paid $5 per pair for socks and $17 per pair for shorts on a total purchase of $315. This year they spent $342 to buy the same number of socks and shorts but the socks now cost $6 per pair and the shorts cost 18.

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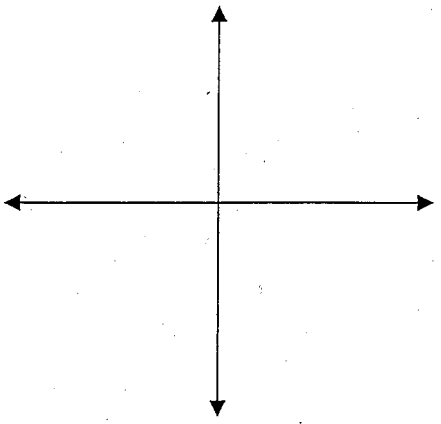
1. Graph: $y > 2$
$x \leq 5$



2. Solve each inequality.

a. $x^2 - 3x - 10 > 0$

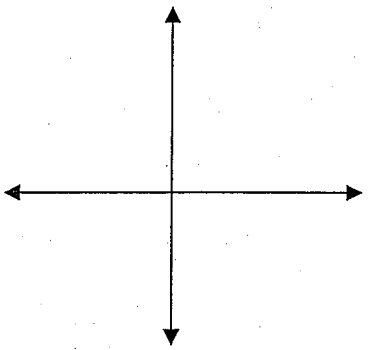
b. $x^3 - 25x < 0$

3. Provide the following information about the function: $y = x^2 - 2x - 8$

a. The graph opens _____
b. The axis of symmetry is _____
c. The vertex is _____
d. Circle one: The vertex is a (minimum or maximum) point.
e. The x-intercepts are _____ and _____
f. The y-intercept is _____
g. The point of reflection to the y-intercept is _____

4. Provide the following information about the function: $y > -(x - 2)^2 + 1$

a. The graph opens _____
b. The axis of symmetry is _____
c. The vertex is _____ the x-intercepts are _____
d. The y-intercept is _____
e. The point of reflection of the y-intercept is _____
f. Sketch the graph.



5. Write an equation of a quadratic function in vertex form whose graph translates 4 units to the left and one unit down from the parent function.

Simplify.

6. $5x^2 + 3x - 4 - (2x + 4x^2 - 3)$

7. $(4x^{-4}y^3)^{-1}$

8. $(5a^2b^{-7}c)(-2a^{-2}b^3c^2)$

9. $\frac{12c^{-5}}{18c^8}$

10. $(3x + 4)(x^2 - 5x - 3)$

Advanced Algebra Name _____
Semester I Exam Review #3

_____1. Which of the following relations is a function?

A = {(2,3) (3,5) (2, 7)} B = {(5, -1)(3, 1) (1, 3)}

a. A
b. B
c. Both A & B are functions
d. Neither A & B are functions

_____2. The graph of $y = |x + 4| + 3$

a. translates 4 units to the right and 3 units up from the parent graph
b. translates 3 units to the left and 4 units up from the parent graph
c. translates 4 units to the left and 3 units up from the parent graph
d. translates 3 units to the right and 4 units up from the parent graph

_____3. For which set of points does the graph of the line containing them have a slope of zero?

a. (4,3) and (4,-3)
b. (4,-3) and (4, -3)
c. (4, 3) and (-4, 3)
d. (-4,3) and (3,4)

_____4. Evaluate $f(x) = x^2 - 2x + 3$ if $x = -1$

a. 4
b. 0
c. 3
d. 6

_____5. Determine the vertex of $y = |x - 2| - 1$

a. (2, -1)
b. (-2, -1)
c. (2, 1)
d. (2, -1)

Solve.

6. Write an equation of a line in slope-intercept that contains (4, -2) and (6, 6).

7. Write an equation of a line in slope-intercept form that is perpendicular to $y = \frac{1}{2}x + 4$ and has the same y-intercept as $2x - 5y = -15$.

8. a. $|x - 2| < 5$

b. $|2x + 1| > 7$

9. a. $\frac{5}{2}x - y = 5$

$4y = 3x - 6$

b. $5.5x + 7.5y = 930$

$0.12x + 0.15y = 19.2$

10. $\frac{y - 2}{3} - \frac{2y + 1}{4} = \frac{5}{6}$

Advanced Algebra – Semester I Exam Review #4

1. At a sale, Sara bought 4 T-shirts and 3 pairs of jeans for $181. Jenna bought 1 T-shirt and 2 pairs of jeans for $94. Write a system of equations to represent the problem.

2. Prices for a school carnival were $5 for regular admission, $3 for students and $1 for children. 210 people attended the carnival and $710 was collected. The number of regular tickets sold was 10 more than twice the number of children's tickets sold. Write a system of equations to represent the problem.

3. A professional pyrotechnician shoots fireworks vertically into the air from the ground with an initial velocity of 192 feet per second. The height in feet of the fireworks is given by $h(t) = -16t^2 + 192t$.

   a. How long does it take for the fireworks to reach the maximum height?

   b. What is the maximum height reached by the fireworks?

4. A landscape architect built a brick walkway of uniform width around a rectangular pool which is 30 feet long and 20 feet wide. The area of the walkway is 276 sq ft. Determine the width of the walkway to the nearest foot.