Name _____ **Date** _____ **Block** _____

1ST Semester Exam Review Algebra II 2015

Day 1 Multiple Choice

I. Linear

Solve the following linear equations.

1. $4x - 5(x - 2) = 9x - 14$

2. Rewrite in slope-intercept form: $4x - 2y = -16$.

II. Absolute Value

3. Solve: $|5x + 8| = 17$

4. Solve: $|4x - 15| > 9$
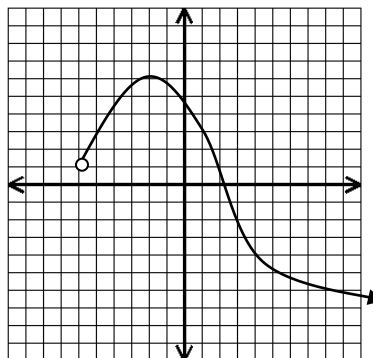
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III. Functions

State the domain and range of the following relations.

5. { (-1,3), (5,2), (2,3), (-1,2), (4,3) }

6.

IV. Systems

Solve the following system of equations using any method.

7. $x + y = 10$
    $3x - 2y = 5$

8. $4x + 3y = -2$
    $3x + 2y = 1$

Solve the system using matrices.

9. $9x + 3y - 2z = 0$
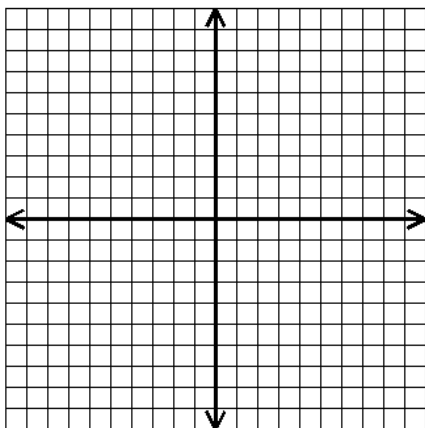 $3x - 4y + 5z = -59$
    $x + 2y + z = 1$

Create a system of equations which could be used to solve this word problem.

10. A group of 42 people go to the zoo. The admission price is $6 for adults and $3 for kids. If the group spends $162, how many adults and kids were in the group?
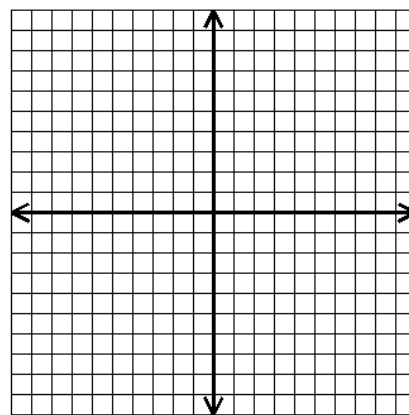
V. Quadratic Graphs

11. Graph the quadratic equation.

$y = 2(x - 1)^2 - 3$

12. Graph the quadratic inequality.

$y \geq \frac{1}{2} (x + 3)^2 x + 4$

13. **Create a new function** if $y = x^2$ has undergone the following transformations: vertically stretched by a factor of ½ , horizontally shifted 3 units to the right and vertically shifted 6 units down?

14. Create a quadratic equation $y = x^2$ that has undergone the following transformations: horizontally shifted right 4 , vertically shifted down 3 and reflected over the x-axis?

15. Given: $y = -3x^2 - 24x + 37$

   a. rewrite in vertex form:

   b. vertex:

   c. y – intercept:

   d. maximum/minimum value at _____

16. A pumpkin tossing contest is held each year in Morton, Illinois. The table below shows the horizontal distance (in feet) the pumpkin travels when launched at different angles.

Angle	20	40	60	70
Distance	372	509	437	323

Create a quadratic equation to represent this data. Round to two decimal places.

VI. Solving Quadratic Equations

17. Multiply: $(5x - 7)(4x + 5)$

Solve the quadratic equation by factoring.

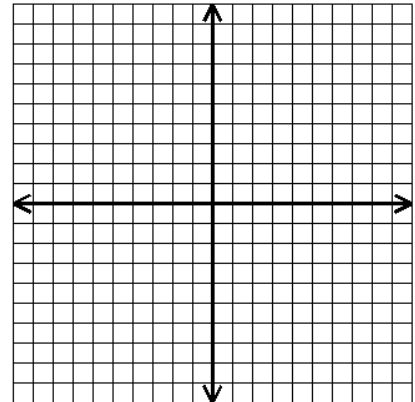18. $x^2 + x - 6 = 0$ 19. $x^2 + 6x + 8 = 0$ 20. $x^2 - 25 = 0$ 21. $16x^2 - 81 = 0$

Midterm Review Day 2 – no multiple choice

Solve the system of inequalies by the graphing.

22. $2x + y \geq 2$
   $x - y < 4$
   $y \leq \frac{7}{3} x + 3$

23. Solve using the substitution method

$$5x + 2y - 2z = -15$$
$$-2x = 10$$
$$6x + z = -27$$

24. Solve using the elimination method

$$-x - 3y - 3z = -21$$
$$3x - 3y + z = -1$$
$$-3x - y + 6z = -1$$

Use your answer from #16 to answer the following two questions

25. What is the maximum distance a pumpkin can be tossed and at what angle will it need to be tossed from?

26. What angles would produce a tossing distance of 206 feet?