Secondary Math 2 Honors Name_____

Unit 6 Systems of Equations Review

Date_____ Period____

Find the inverse of each matrix. Show all work.

1) $\begin{bmatrix} 6 & 5 \\ 6 & 4 \end{bmatrix}$

2) $\begin{bmatrix} -3 & 0 \\ 5 & -1 \end{bmatrix}$

3) $\begin{bmatrix} 5 & 1 \\ -1 & 1 \end{bmatrix}$

4) $\begin{bmatrix} -3 & -7 \\ 2 & 7 \end{bmatrix}$

Find the inverse of each matrix.

5) $\begin{bmatrix} -1 & -5 & 4 \\ -3 & 4 & 4 \\ 4 & -5 & -5 \end{bmatrix}$

6) $\begin{bmatrix} -4 & 5 & -1 \\ 0 & 0 & 0 \\ 4 & -3 & 0 \end{bmatrix}$

Evaluate the determinant of each matrix.

7) $\begin{bmatrix} -5 & 5 \\ 2 & 1 \end{bmatrix}$

8) $\begin{bmatrix} -3 & -5 \\ -2 & -3 \end{bmatrix}$

Write the following systems as matrix equations. Then solve using matrices. Show all work.

9) $-x - y = -7$
$x - 2y = -8$

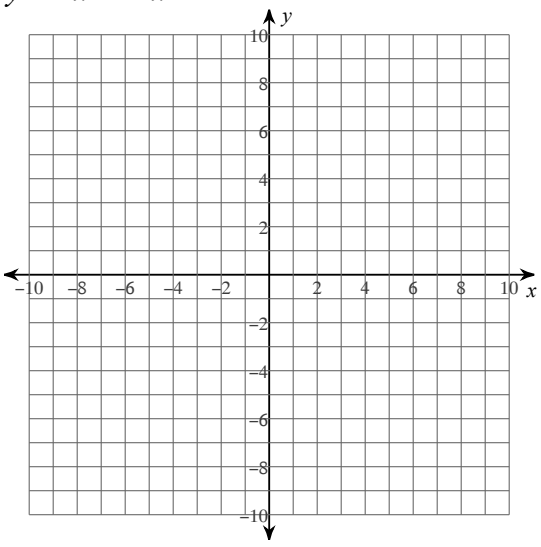
10) $-3x + 4y = 17$
$2x - 5y = -16$

11) $3y + 5z = 22$
$-x + 5y + z = 0$
$4x + 3y - z = -8$

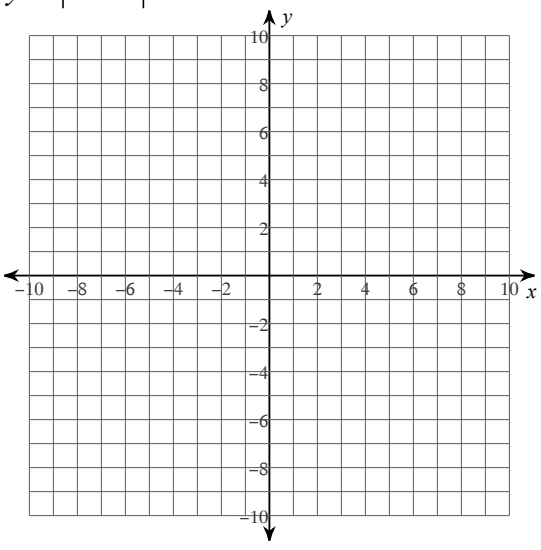
12) $5x + y = -9$
$-x - 4y + 2z = -12$
$-3x + 4y + 4z = -10$

13) What is the equation of a circle? Where does it come from?

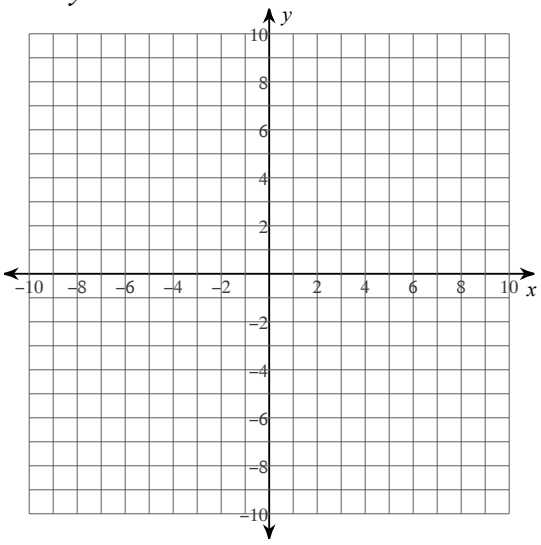
14) $y = 2|x - 5|$
$y = -x^2 + 4x + 2$



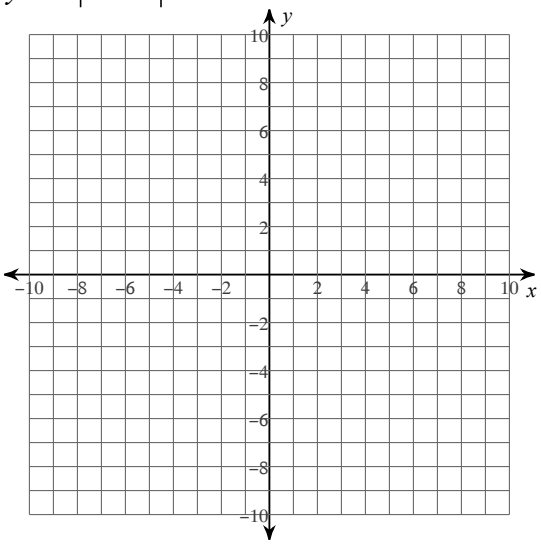
15) $x^2 + y^2 = 25$
$y = |x - 5|$



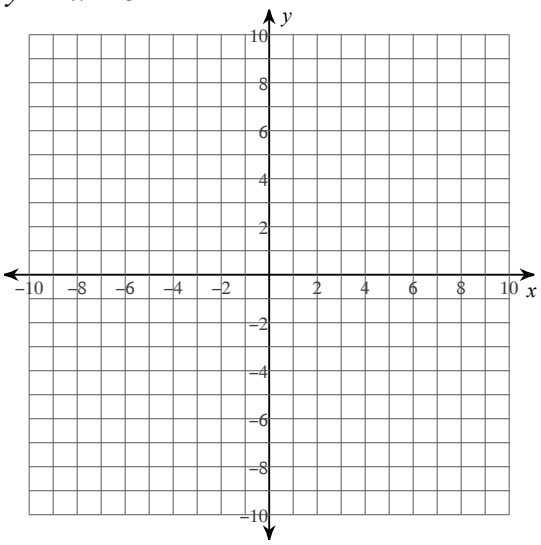
16) $y = -x^2 + 1$
$x^2 + y^2 = 1$



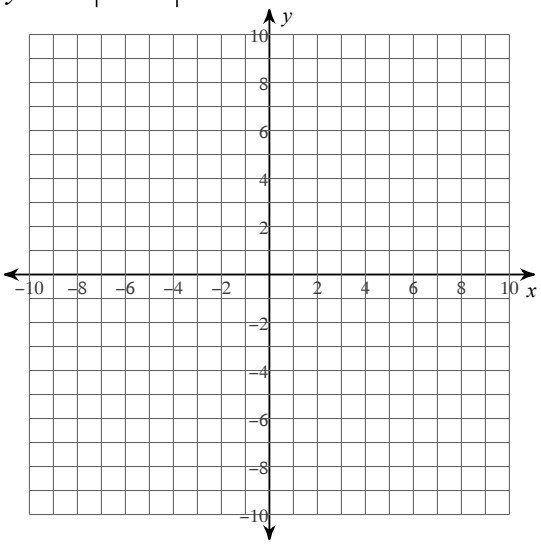
17) $y = (x + 4)^2 - 1$
$y = -|x + 2| + 1$



18) $y = -2(x + 3)(x - 1)$
$y = 2x + 6$



19) $(x - 4)^2 + (y + 1)^2 = 9$
$y = -2|x - 4| + 6$



20) Sketch three possible systems that have 2 solutions.

Solve each system algebraically.

21) $y = x^2 - 5x + 1$
$y = x + 1$

22) $y = x^2 - x - 12$
$y = x + 3$

23) $y = x^2 + 4x + 3$
$y = 2x + 6$

24) $(x + 1)^2 + (y - 4)^2 = 3$
$y = -x$

25) $x^2 + (y + 2)^2 = 16$
$y = x + 2$

26) $y = 3x - 2$
$x^2 - 4y = 8$

27) Willie's school is selling tickets to a play. On the first day of ticket sales the school sold 7 adult tickets and 13 child tickets for a total of $186. The school took in $252 on the second day by selling 14 adult tickets and 14 child tickets. Find the price of an adult ticket and the price of a child ticket.

28) For a rectangle whose area is 124 cm^2 and has a length that is 5cm longer than the width:

a. Draw the rectangle, labeling the sides in terms of the width.

b. Determine the dimensions of the length and the width algebraically (not guess and check).

Use the information provided to write the equation of each circle.

29) Center: $(-6, -10)$
Radius: 5

30) Center: $(-8, -13)$
Radius: 4

31) Center: $(16, 13)$
Point on Circle: $(18, 15)$

32) Center: $(1, 13)$
Point on Circle: $(2, 10)$