Pre-AP Algebra II – Semester Review
Fall 2010

Name _____
Date _____

Determine whether the relation is a function. Explain:

1. $(-3,4),(2,5),(1,0),(0,4),(-2,-3),(3,6)$

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What is the slope of the line identified by: (TAKS Obj. 3)

2. $3y = -6(x+2)$

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Write an equation of the line that passes through the given point and satisfies the given condition.

3. $(10,2); parallel\ to\ y = -5x + 7$

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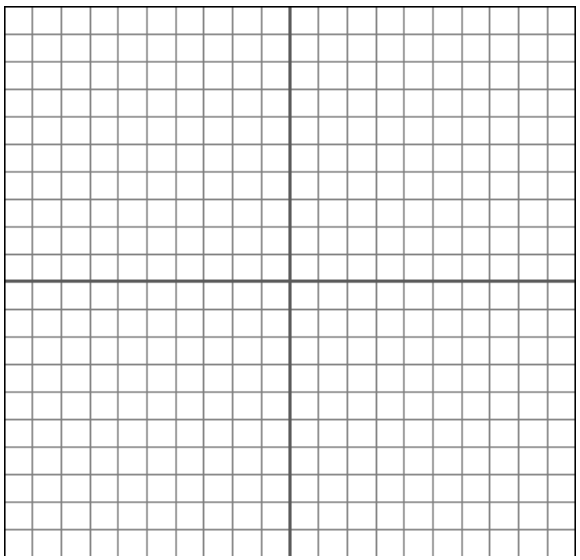
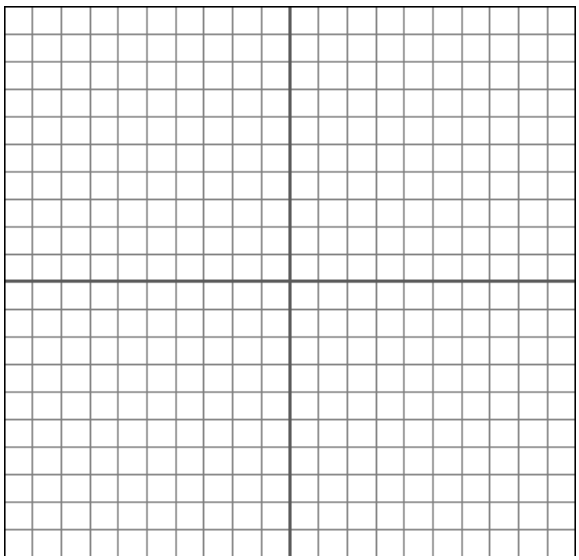
Graph each of the following.

4. $x + 2y = 6$

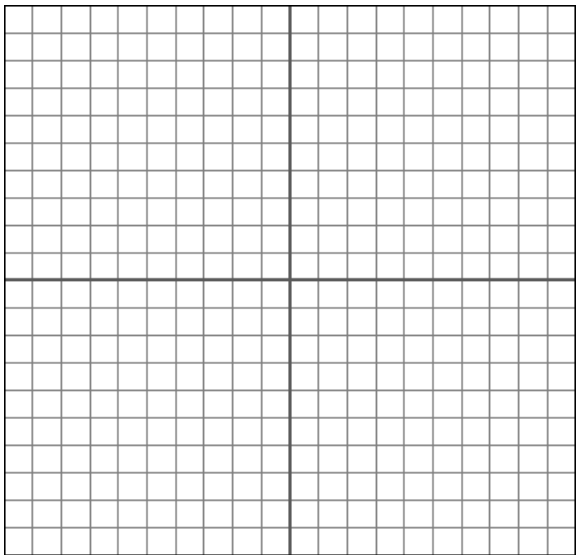


5. $y < |x-3| + 1$



Graph the linear system.
Then check the solution algebraically.

6. $\begin{cases} x + 2y = -6 \\ -6x - 2y = -14 \end{cases}$

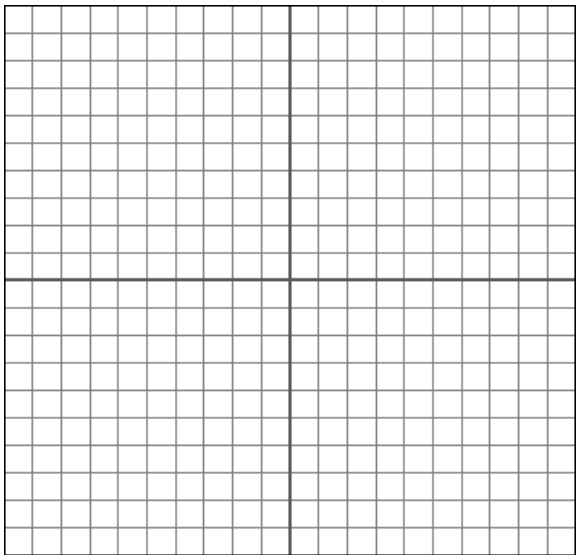


Solve the system by ***Substitution***:

8. $\begin{cases} 3x + y = -9 \\ x - 2y = -10 \end{cases}$

Graph the system of linear inequality.

7. $\begin{cases} 2x + y < 6 \\ y > -2 \end{cases}$



Solve the system by ***Elimination:***

9. $\begin{cases} 2x - 3y = 15 \\ 2x - 3y = -6 \end{cases}$

Use the given matrices to evaluate the expression (if possible):

$A = \begin{bmatrix} 1 & -2 \\ 4 & -3 \end{bmatrix}$, $B = \begin{bmatrix} 3 & 5 \\ -1 & 0 \end{bmatrix}$, $C = \begin{bmatrix} -1 & 3 & -2 \\ 2 & 0 & -1 \end{bmatrix}$

10. $2A + B$

11. AC

Evaluate the determinant of the matrix.

12. $\begin{bmatrix} -4 & 5 \\ 2 & -1 \end{bmatrix}$

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

Use an inverse matrix to solve the linear system.

14. $\begin{cases} 2x - 7y = -36 \\ x - 3y = -16 \end{cases}$

Solve the following system by ***Elimination:***

15. $\begin{cases} x + y + z = 3 \\ -x + 3y + 2z = -8 \\ 5y + z = 2 \end{cases}$

_____

16. The solution of which system is (0, 4)? (TAKS Obj. 4)

A $\begin{cases} x + y = 4 \\ x - y = 4 \end{cases}$ B $\begin{cases} 2x + y = -4 \\ x - 2y = 8 \end{cases}$ C $\begin{cases} 3x + 2y = 8 \\ x - 4y = -16 \end{cases}$ D $\begin{cases} 2x + y = 4 \\ 3x - 2y = 12 \end{cases}$

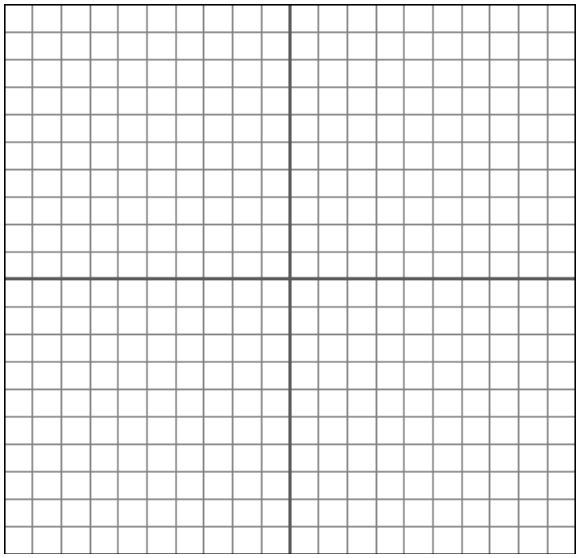
_____

Find the vertex, axis of symmetry, and graph the function.

17. $y = -(x+3)^2 + 5$

Vertex: _____

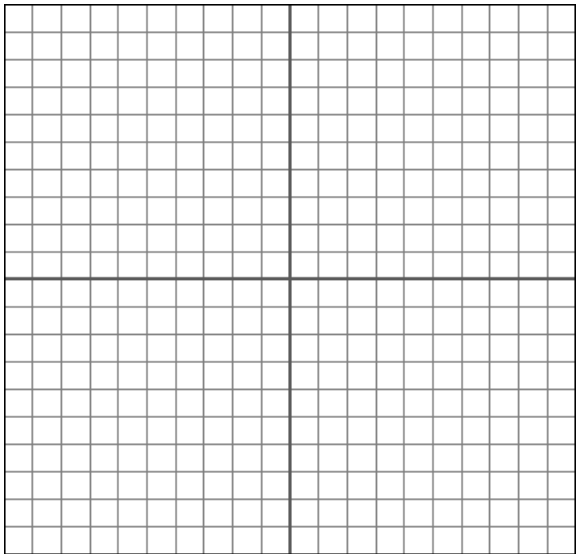
Axis of Symmetry:_____



18. $f(x) = 2(x+4)(x-2)$

Vertex: _____

Axis of Symmetry:_____



Factor the expression.

19. $x^2 + 2x - 15$

_____

Solve the following by factoring:

20. $2w^2 = -13w - 7$

_____

Solve the equation by completing the square:

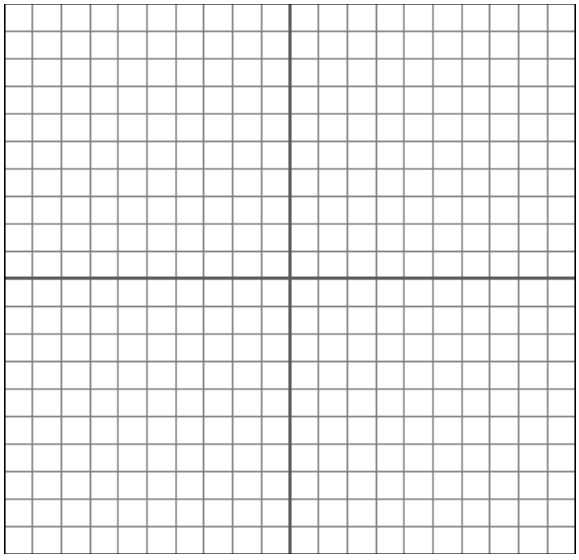
21. $4x^2 + 8x + 3 = 0$

Use the quadratic formula to solve the equation:

22. $2x^2 = x - 6$

Graph the inequality:

23. $y < x^2 + 4x - 21$



24. What are the $x - intercepts$ of the graph of the equation $y = x^2 - x - 30$? (TAKS Obj. 2)

A $x = 5, x = 6$

B $x = -5, x = 6$

C $x = 5, x = -6$

D $x = -5, x = -6$

Use the properties of exponents to simplify the following:

25. $(2x^{-2}y^3)^5$

26. $\left(\frac{x^{-4}}{y^2}\right)^{-2}$

Factor the polynomial completely.

27. $x^4 + 5x^2 - 6$

28. $x^3 - 3x^2 - 4x + 12$

Perform the indicated operation.

29. $(3x - 2)(x^2 + 4x - 7)$

30. $(3x^3 - 14x^2 + 16x - 22) \div (x - 4)$

Find list of all possible zeros and find all the ***real zeros***:

31. $f(x) = x^3 + x^2 - 22x - 40$

List of Possible Zeros:_____

Actual Real Zeros:_____

Write a polynomial function f of least degree that has rational coefficients, a leading coefficient of 1, and the given zeros: (TAKS Obj. 3)

32. $6, 2i$

_____

33. The height h above the ground (in feet) of a stuntman falling from a window is given by $y = -16t^2 + 90$ where t is the time (in seconds). An air cushion that is 9 feet high is positioned on the ground below the window. About how many seconds will the stuntman fall before the shits the air cushion? (TAKS Obj. 5)

A 2.25 sec

B 2.37 sec

C 8.66 sec

D 9.48 sec _____