Name: Key

Algebra
Graphing Review

For #1-3 **(a) Name the type of equation that is given (linear, quadratic, or exponential).**
(b) Determine the y-intercept of the equation.

1. $y = \frac{2}{3}x + 10$

a) Linear

b) (0 , 10)

2. $y = 2x^2 - 5x$

a) Quadratic

b) (0 , 0)

3. $y = 3 \bullet 0.5^x$

a) Exponential

b) (0 , 3)

For #4, match the graph with the given equation.

4. $2x^2 + 4x$ F

$2x - 2$ A

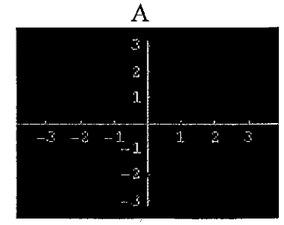
$-3x^2 + 3$ B

$-x^2 + x$ C

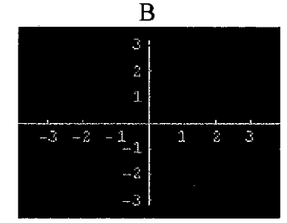
2x D

$-x^2 + 3$ E

A



B



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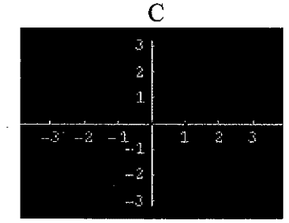

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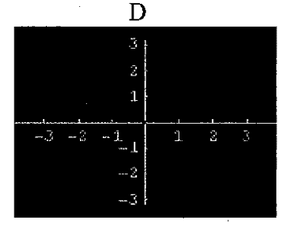
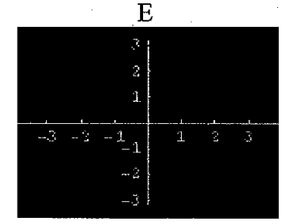
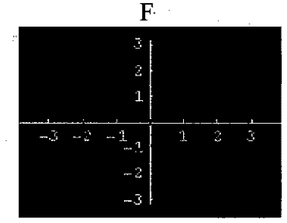


E

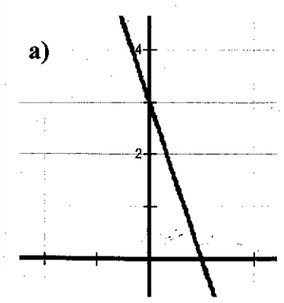


F

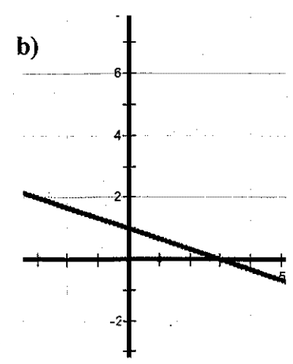


5. $y = \frac{-1}{3}x + 1$ B

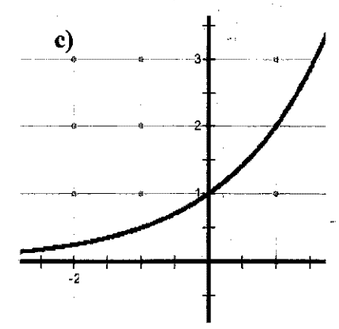
a)



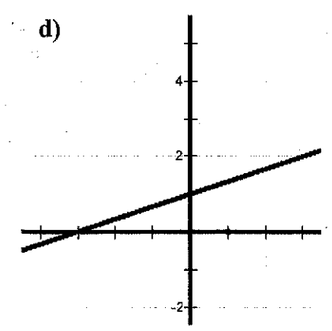
b)



c)



d)



For 6 – 8, give the needed information. If necessary, round answers to the nearest tenth.

6. $y = 3x^2$

A. **Choose one.** Opens up or opens down — Opens up

B. The value for a, b, and c — $a = 3$, $b = 0$, $c = 0$

C. The equation for the axis of symmetry — Axis of symmetry is: $x = 0$

$\frac{-b}{2a} = \frac{-0}{2(1)} = 0$

D. The y-intercept — y-intercept is: $(0, 0)$

E. The coordinates of the vertex — Coordinates of the vertex are: $(0, 0)$

F. **Choose one.** Vertex is a minimum or maximum. — Vertex is a minimum

7. $h = -16t^2 + 10t - 4$

A. **Choose one.** Opens up or opens down — Opens down

B. The value for a, b, and c — $a = -16$, $b = 10$, $c = -4$

C. The equation for the axis of symmetry — Axis of symmetry is: $x = \frac{5}{16}$

$\frac{-b}{2a} = \frac{-10}{2(-16)} = \frac{-10}{-32} = \frac{5}{16}$

D. The y-intercept — y-intercept is: $(0, -4)$

E. The coordinates of the vertex — Coordinates of the vertex are: $\left(\frac{5}{16}, -2\frac{7}{16}\right)$

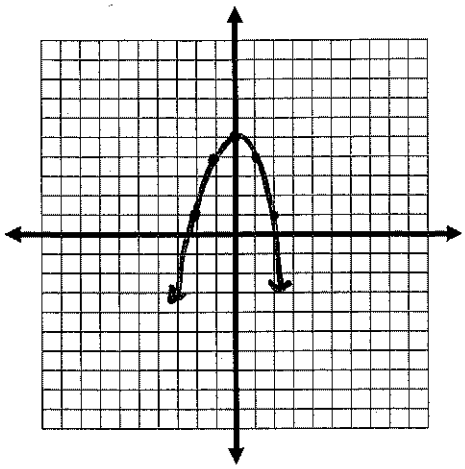
$-16\left(\frac{5}{16}\right)^2 + 10\left(\frac{5}{16}\right) - 4$

F. **Choose one.** Vertex is a minimum or maximum. — Vertex is a maximum

For #8 – 10, graph the following equations. Fill in the chart for each.

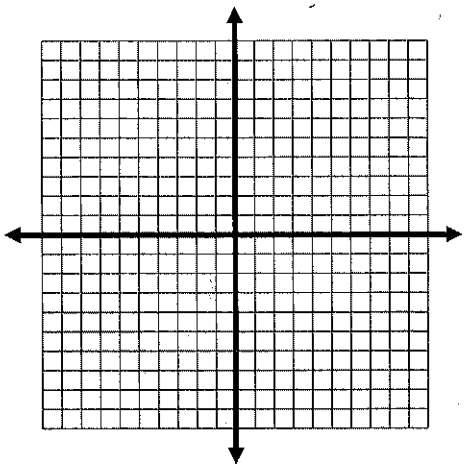
8. $y = -x^2 + 5$

x	y
-2	1
-1	4
0	5
1	4
2	1



9. $y = 3\left(\frac{1}{2}\right)^x$

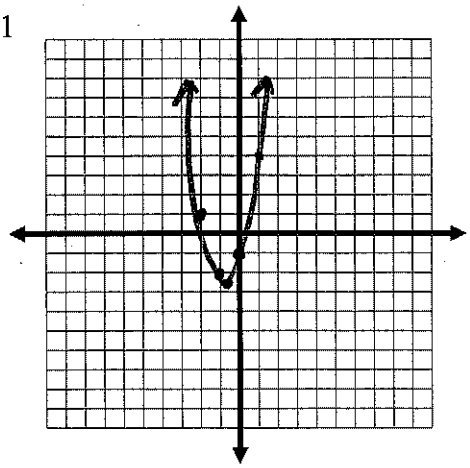
x	y
-2	
-1	
0	
1	
2	



10. $y = 2x^2 + 3x - 1$

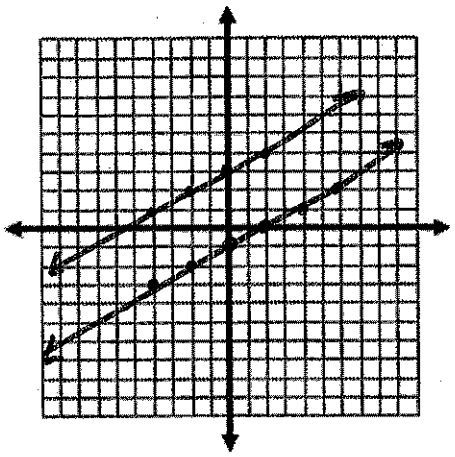
$\frac{-b}{2a} = \frac{-3}{2(2)}$ $-\frac{3}{4}$

x	y
-2	1
-1	-2
-3/4	-2.125
0	-1
1	4



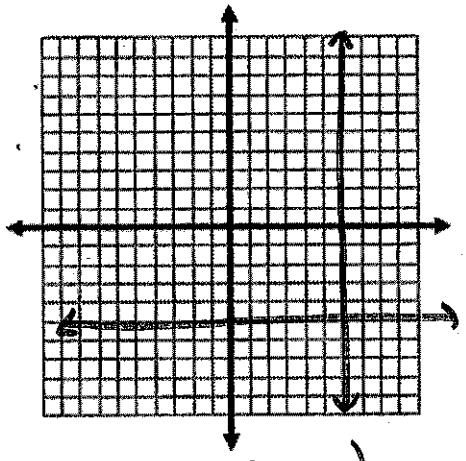
For 11-12, **Solve each system by graphing. Write the solution on the line below each graph.**

11. $\begin{cases} -x+2y=-2 \\ y=\frac{1}{2}x+3 \end{cases}$ (0, -1) (2, 0)



Solution No Solution - parallel lines

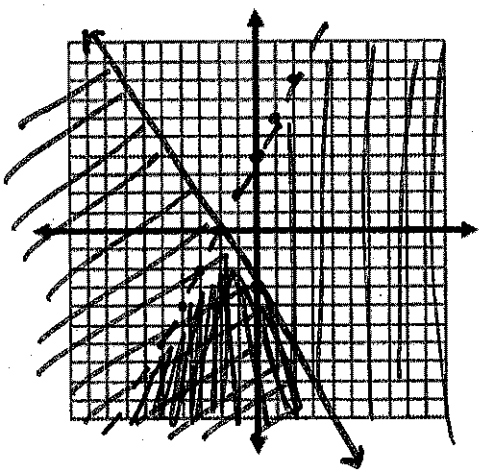
12. $\begin{cases} x=6 \\ y=-5 \end{cases}$



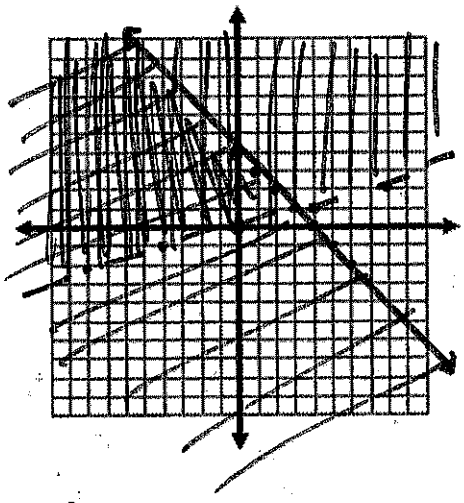
Solution (6, -5)

For #'s 13-14: Solve each system of inequalities by graphing.

13. $\begin{cases} y<2x+4 \\ -3x-2y\geq 6 \end{cases}$ (0, -3) (-2, 0)



14. $\begin{cases} y>\frac{1}{4}x \\ y\leq -x+4 \end{cases}$



15. You want to spend at least \$40 but no more than \$100 on school clothes for yourself. T-shirts sell for \$10 and pants sell for \$20. How many T-shirts and pants combinations could you buy?

a. Define variables for the situation.

Let x = # of t-shirts

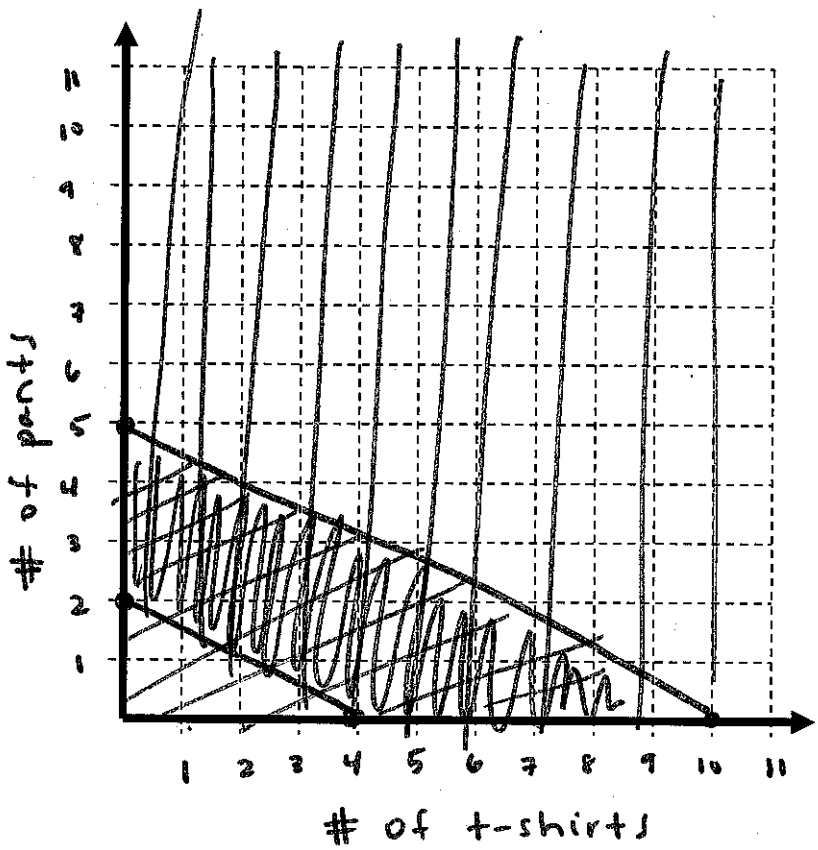
Let y = # of pants

b. Write a system of linear inequalities to represent the data.

$10x + 20y \geq 40 \longrightarrow (0, 2) \quad (4, 0)$

$10x + 20y \leq 100 \longrightarrow (0, 5) \quad (10, 0)$

c. Graph your systems (make sure to label each axis, write in your scale and clearly define your regions).



d. Give two possible solutions for the system.

any solution found in shaded area on graph.

(6, 1) 6 t-shirts, 1 pair of pants

(3, 2) 3 t-shirts, 2 pairs of pants