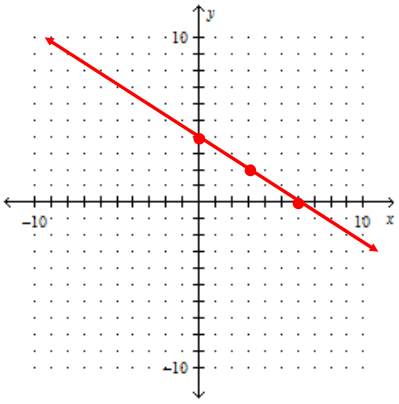
Chapter 2 – Practice Test

No calculator will be allowed on this portion of the test.

1. Graph the line: $y = -\frac{2}{3}x + 4$

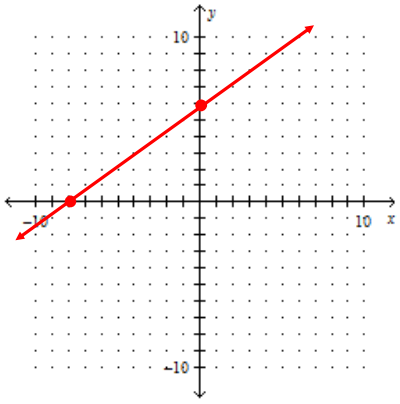
Clearly plot at least 2 points that lie on the line.



2. Graph the line: $-3x + 4y = 24$

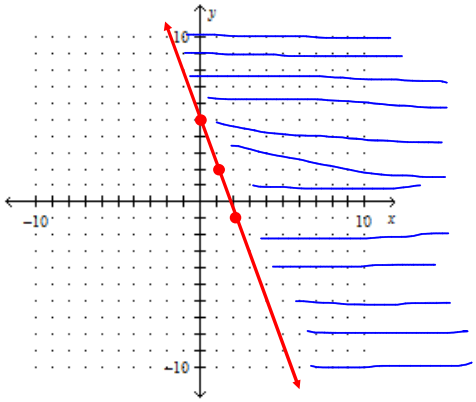
Clearly plot at least 2 points that lie on the line.

Find (0, ?) and (?, 0)



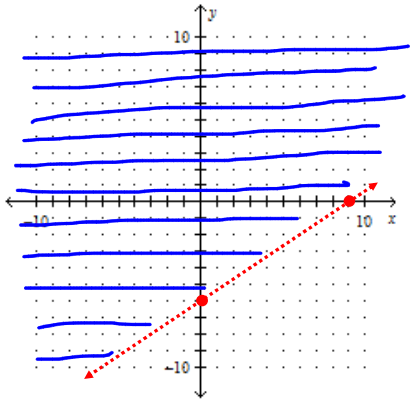
3. Graph the inequality: $y \geq -3x + 5$

Clearly plot at least 2 points that lie on the boundary line.



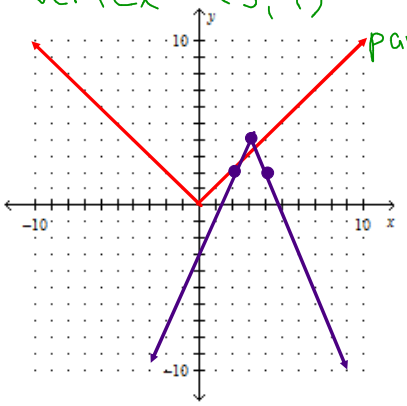
4. Graph the inequality: $2x - 3y < 18$

Clearly plot at least 2 points that lie on the boundary line.



5. Graph the parent graph $y = |x|$ and the graph of $y = -2|x - 3| + 4$. ***Clearly*** plot the vertex and at least ***two other points for each graph.***

Vertex = (3, 4)



You may use a calculator on the rest of this test.
Show your work on every problem!

6. Find the slope of the line passing through the points (-8 , 8) and (1 , -2).

$$m = \frac{-2-8}{1-(-8)} = \frac{-10}{9}$$

7. Write an equation of a line that has slope 8 and y-intercept -1.

$$y = 8x - 1$$

8. Write the equation of the line, in slope-intercept form, that passes through the point (-5 , -6) and has slope 2.

$y = mx + b$ $\quad -6 = -10 + b$ $\quad y = 2x + 4$

$-6 = 2(-5) + b$ $\quad 4 = b$

9. Find the slope-intercept equation of the line passing through the points (2 , 1) and (-43 , 19).

$m = \frac{19-1}{-43-2} = \frac{18}{-45} = -\frac{2}{5}$ $\quad y = mx + b$ $\quad 1 = -\frac{4}{5} + b$

$1 = -\frac{2}{5}(2) + b$ $\quad b = 1\frac{4}{5}$

10. Tell whether **Line 1** and **Line 2** are *parallel*, *perpendicular*, or *neither*. Explain/show work.

Line 1 passes through (4 , -6) and (6 , -2). $\rightarrow m = \frac{-2--6}{6-4} = \frac{4}{2} = \frac{2}{1}$ $\quad y = -\frac{2}{5}x + \frac{4}{5}$

Line 2 passes through (7 , -8) and (11 , -6). $\rightarrow m = \frac{-6--8}{11-7} = \frac{2}{4} = \frac{1}{2}$

Neither - Slopes are not equal, nor opposite reciprocals.

11. Determine whether the relation is a function. Explain why or why not.
(22, 14), (10, 14), (22, 15), (13, 16), (14, 16)

No, the input value of 22 has more than one output value.

12. Which equation has the steeper graph, $y = \frac{1}{5}x - 2$ or $y = \frac{3}{8}x + 3$? Explain.

$\frac{3}{8} > \frac{1}{5}$ so $y = \frac{3}{8}x + 3$ has the steeper graph.

13. Consider the equation $y = -5x + 5$.

a. Write an equation that passes through the point (6 , -1) and is ***parallel*** to the given equation.

$m = -5$ $\quad -1 = -5(6) + b$ $\quad -1 = -30 + b$ $\quad b = 29$ $\quad y = -5x + 29$

b. Write an equation that passes through the point (6 , -1) and is ***perpendicular*** to the given equation.

$m = \frac{1}{5}$ $\quad -1 = \frac{1}{5}(6) + b$ $\quad -1 = \frac{6}{5} + b$ $\quad -\frac{11}{5} = b$ $\quad y = \frac{1}{5}x - \frac{11}{5}$

14. Is the ordered pair (5 , -1) a solution of the inequality $3x - 4y \geq 20$? Explain.

$3(5) - 4(-1) \stackrel{?}{\geq} 20$ $15 + 4 \geq 20$

No. Not a solution.

15. The pet store has dog bones that sell for $3.75 a pound and pig ears that sell for $2.50 a pound. Write an equation that represents how much of each type of dog treat can be bought with $42.

$3.75x + 2.50y = 42$

17. The value y of a copier x years after it was purchased can be modeled by the equation $y = 3000 - 500x$.

a. What is the slope of the line for this equation?

-500

Describe what the slope represents.

The value of the copier decreases by $500 every year.

b. What is the y-intercept of the line for this equation?

3000

Describe what the y-intercept represents.

The value of the copier when it was purchased was $3000.

16. The amount of money in Amy's college fund can be modeled by the equation $y = 5000 + 1500x$ where x = her age in years.

a. What is the slope of the line for this equation?

1500

Describe what the slope represents.

$1500 is added to Amy's college fund every year.

b. What is the y-intercept of the line for this equation?

5000

Describe what the y-intercept represents.

$5000 was the starting amount in the fund when Amy was born.

17. The table shows the population p (in millions) of Florida over a four year span.

Year	2000	2001	2002	2003
Population (in millions)	15.6	16.0	16.3	16.6

a. Approximate the best–fitting line for the data. $y = 0.33x - 644.37$

b. Using this model, what will be the population in 2010?

$y = 0.33(2010) - 644.37$

$y = 18.93$ million