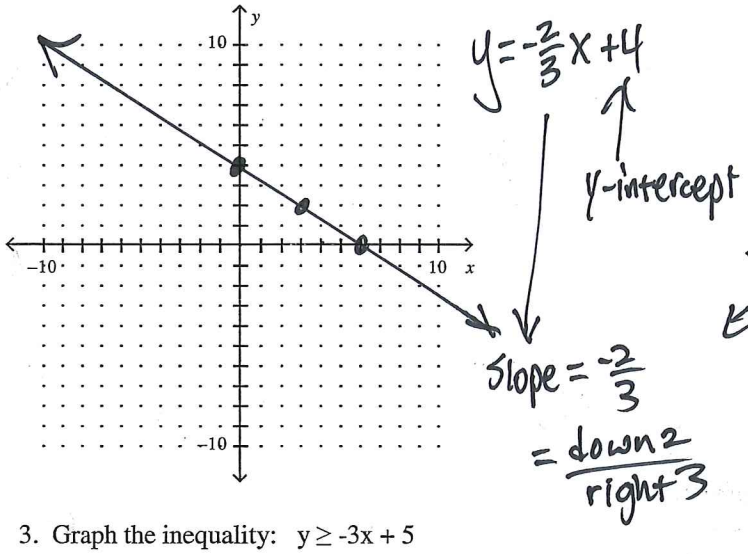
Caitie Call

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.



$y = -\frac{2}{3}x + 4$

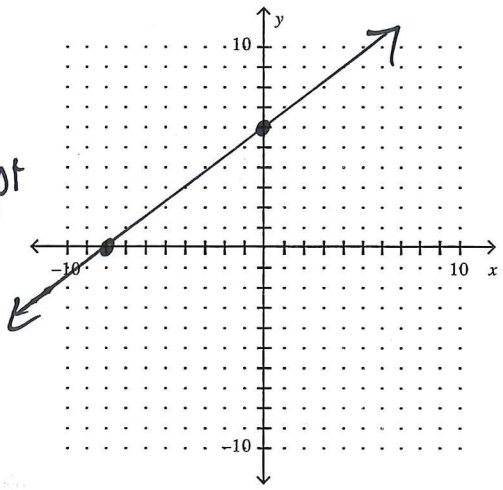
y-intercept

Slope $= \frac{-2}{3}$

$= \frac{\text{down } 2}{\text{right } 3}$

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

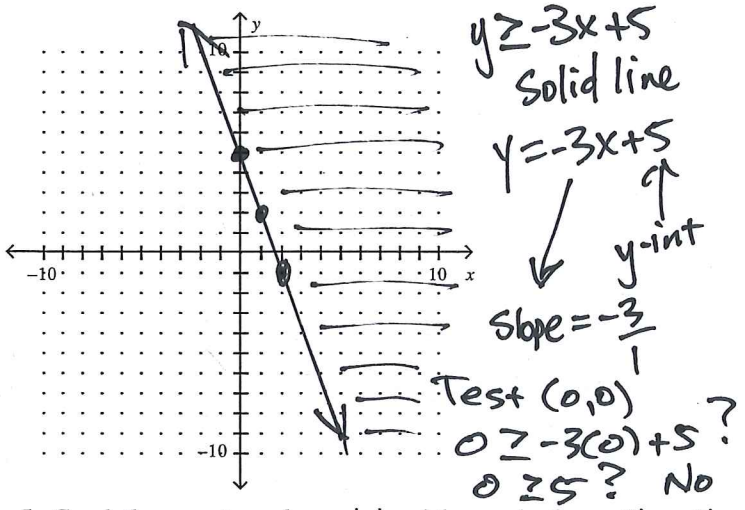
Clearly plot at least 2 points that lie on the line.



x	y
0	6
-8	0

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

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



$y \geq -3x + 5$

Solid line

$y = -3x + 5$

y-int

Slope $= \frac{-3}{1}$

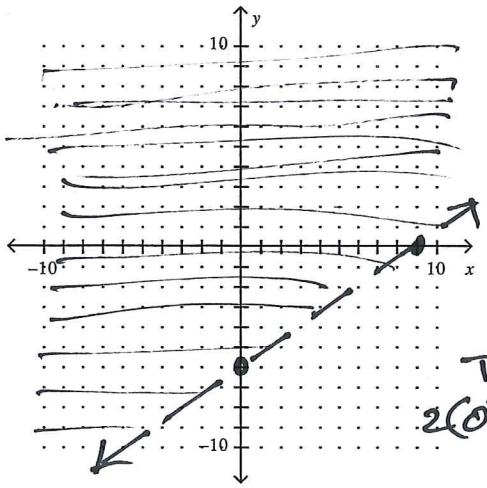
Test (0,0)

$0 \geq -3(0) + 5$?

$0 \geq 5$? No

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

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



$2x - 3y = 18$

dotted

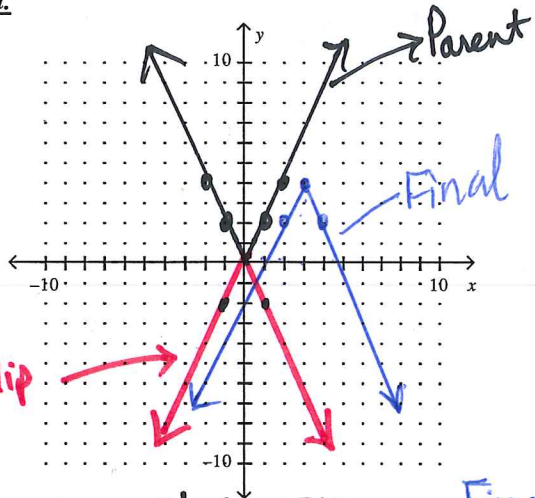
x	y
0	-6
9	0

Test (0,0)

$2(0) - 3(0) < 18$?

$0 < 18$? Yes

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.***



right 3 → up 4

Parent: $y = 2|x|$

Flip	Final
(-1, -2)	(2, 2)
(0, 0)	(3, 4)
(1, -2)	(4, 2)

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.

$y = mx + b$
$-6 = 2(-5) + b$
$-6 = -10 + b$
$4 = b$
$y = 2x + 4$

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

$m = \frac{19-1}{-43-2} = \frac{18}{-45} = -\frac{2}{5}$
$1 = -\frac{2}{5}(2) + b$
$1 = -\frac{4}{5} + b$
$b = 1\frac{4}{5}$
$y = -\frac{2}{5}x + 1\frac{4}{5}$

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). $m_1 = \frac{-2-(-6)}{6-4} = \frac{4}{2} = 2$

Line 2 passes through (7 , -8) and (11 , -6). $m_2 = \frac{-6-(-8)}{11-7} = \frac{2}{4} = \frac{1}{2}$

Neither. The slopes are not equal nor are they 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 "22" has more than one output. (14 and 15)

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 $y = \frac{3}{8}x + 3$ is steeper.

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.

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

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

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

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

$3(5) - 4(-1) \geq 20$?
$15 + 4 \geq 20$
No.

15. The pet store has dog bones that sell for \$3.75 a pound and pig ears that sell for \$2.50 a pound.

a.) Write an equation in standard form that represents how much of each type of dog treat can be bought with exactly \$42. $3.75x + 2.50y = 42$

b.) Find the x-intercept and the y-intercept. **Explain what they mean in the context of the problem.**

X-intercept = the x-value when $y = 0$; it's the number of dog bones you could buy if you bought 0 pig ears. [11.2]

y-intercept = the y-value when $x = 0$; it's the number of pig ears you could buy if you bought 0 bones.

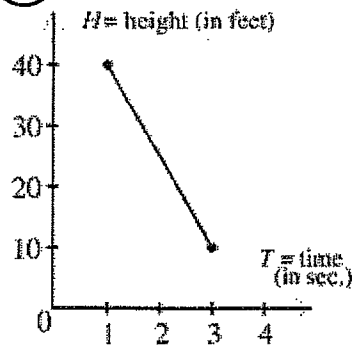
16.8

- PRACTICE TEST -

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.

See previous page

16. What is the domain and what is the range of the function in the graph?



Domain: $1 \le x \le 3$ Range: $10 \le y \le 40$

OR $1 \le T \le 3$ $10 \le H \le 40$

17. 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.
increase in the fund each year

b. What is the y-intercept of the line for this equation?
5000

Describe what the y-intercept represents.
starting value of the fund (when she was born.)

18. 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.
$y = 0.33x + 15.63$ OR $y = 0.33x - 644.37$

b. Using this model, what will be the population in 2010?
$y = 0.33(10) + 15.63$
$y = 18.93$ (million)

19. ***Given*** $f(x) = -5x - 9$. ***Evaluate:***

a. f(5)
$f(5) = -5(5) - 9$
$= -25 - 9$
$= -34$
$f(5) = -34$

b. *f(-6)*
$f(-6) = -5(-6) - 9$
$= 30 - 9$
$= 21$
$f(-6) = 21$

c. *f(0)*
$f(0) = -5(0) - 9$
$= 0 - 9$
$= -9$
$f(0) = -9$

20. Find the slope and y-intercept of the graph of $4x + 3y = 24$.

Solve for y to put in slope-intercept form:

$4x + 3y = 24$

$-4x \quad -4x$

$3y = -4x + 24$

$\frac{3y}{3} = \frac{-4x}{3} + \frac{24}{3}$

$y = -\frac{4}{3}x + 8$

slope $= -\frac{4}{3}$

y-int $= 8$

21. The amount a spring will stretch, S, varies directly with the force (or weight), F, attached to the spring. If a spring stretches 3 inches with 35 pounds attached, how far will it stretch with 85 pounds attached?

Find a: $S = aF$

$3 = a(35)$

$\frac{3}{35} = a$

Write equation: $S = \frac{3}{35}F$

Not on this year's test

$F = 85$

Use equation: $S = \frac{3}{35}(85)$

≈ 7.3 inches

22. The variables x and y vary directly and $y = -20$ when $x = \frac{1}{4}$. Write an equation that relates the variables.

$y = ax$

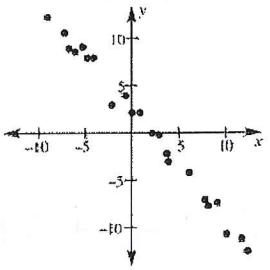
$-20 = a(\frac{1}{4})$

$-80 = a$

Not on this year's test.

$y = -80x$

23. For the scatter plot shown, state whether x and y have a *positive correlation*, a *negative correlation*, or *no correlation*.



Negative correlation.

24.) $3|x+2| = -24$

$|x+2| = -8$

no solution

(absolute value cannot be negative)

25.) $|3x-14| < 10$

$3x - 14 < 10$ AND $3x - 14 > -10$

$3x < 24$ $\quad 3x > 4$

$x < 8$ AND $x > \frac{4}{3}$