

# Int. Math 1 Team Test: Chapter 2

My Name: Key

Teammate 1: \_\_\_\_\_ Teammate 2: \_\_\_\_\_ Teammate 3: \_\_\_\_\_

Show all work for full credit. Pencil only.

1. Consider the line  $-9x - 3y = 54$   
Write the *coordinates* of the x-intercept.

$$-3y = 54$$

$$y = -18 \quad (0, -18)$$

(3 pts each, \_\_\_/12 pts)

1a)  $(0, -18)$

Write the *coordinates* of the y-intercept.

$$-9x = 54$$

$$x = -6 \quad (-6, 0)$$

b)  $(-6, 0)$

Using the coordinate from (a) as your *first* point, and then using the coordinate from (b) as your *second* point, use the slope formula to find the slope. Show your work.

$$\begin{matrix} (0, -18) & (-6, 0) \\ x_1 & y_1 & x_2 & y_2 \end{matrix} \quad m = \frac{0 - (-18)}{-6 - 0} = \frac{18}{-6} = -3$$

Jasmine thinks the point  $(-5, -3)$  is on the line, do you agree? Show your work algebraically as a justification.

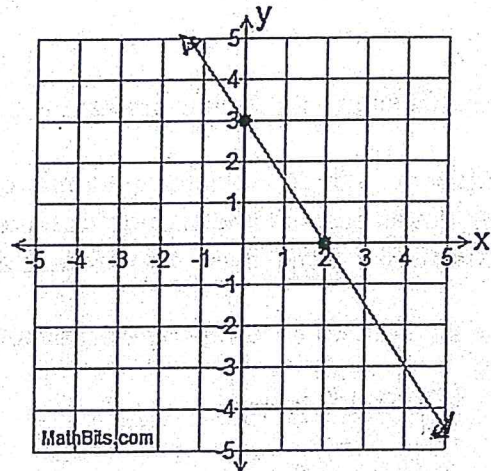
$$-9(-5) - 3(-3) = 54$$

$$45 + 9 = 54$$

$$54 = 54 \quad \checkmark$$

d) yes!

Ivan and Mike are trying to find the equation of the line shown at right. Ivan says that the equation should be  $y = -\frac{3}{2}x + 3$ , but Mike says the equation should be  $y = -\frac{2}{3}x + 3$ .



Who is correct? How do you know?

Ivan, the slope is  $-\frac{3}{2}$

Explain the mistake that was made.

Mike switched the slope.

(3 pts each, \_\_\_/6 pts)

Without graphing, use the slope formula to find the slope of the line that passes through the points:

$$\begin{matrix} (-45, -17) & \text{and} & (-5, 2) \\ x_1 & y_1 & x_2 & y_2 \end{matrix}$$

$$m = \frac{2 - (-17)}{-5 - (-45)} = \frac{19}{40}$$

(\_\_\_/5 pts)

4. Solve each of the following equations. (4 pts each, \_\_\_/12 pts)

a.  $4(-6x+9) - 3(x-2) = 41 - 24x$   
 $-24x + 36 - 3x + 6 = 41 - 24x$

$-27x + 42 = 41 - 24x$   
 $+27x \quad -41 \quad -41 \quad +27x$   
 $1 = 3x \rightarrow x = \frac{1}{3}$

b.  $10 - 3x = 4x + 10$   
 $-10 \quad +3x \quad -3x \quad -10$

$0 = 7x$   
 $x = 0$

c.  $5x + 7 = 0$   
 $-7 \quad -7$

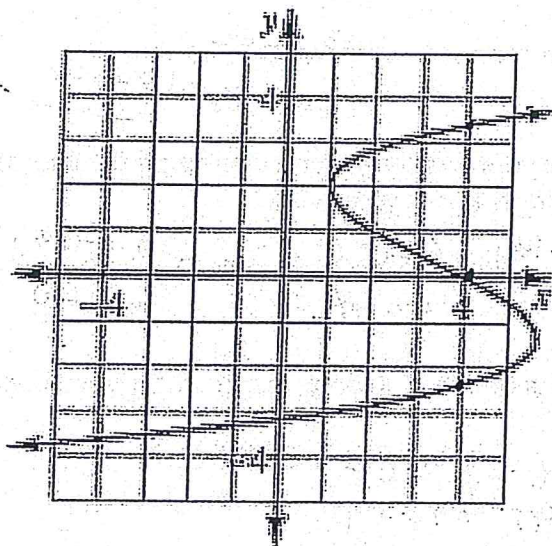
$5x = -7$   
 $x = -\frac{7}{5}$

5. Evaluate the following. (1 pt each, \_\_\_/5 pts)

a.  $h(0) \approx -3.1$

b.  $h(4) = 0, -2.4, 3.3$

c.  $x$  when  $h(x) = 0 = 4$



5. Rider, Buckman, and Dunne are having a skateboard race.

(2 pts each, \_\_\_/14 pts)

- Rider got a three foot head start and rode six feet every 5 seconds.
- Buckman began at the starting line and rode at a constant rate of 3 feet per second.
- Dunne rode 3 feet every two seconds and had a two foot head start.

Write an equation for each contestant and label their lines.

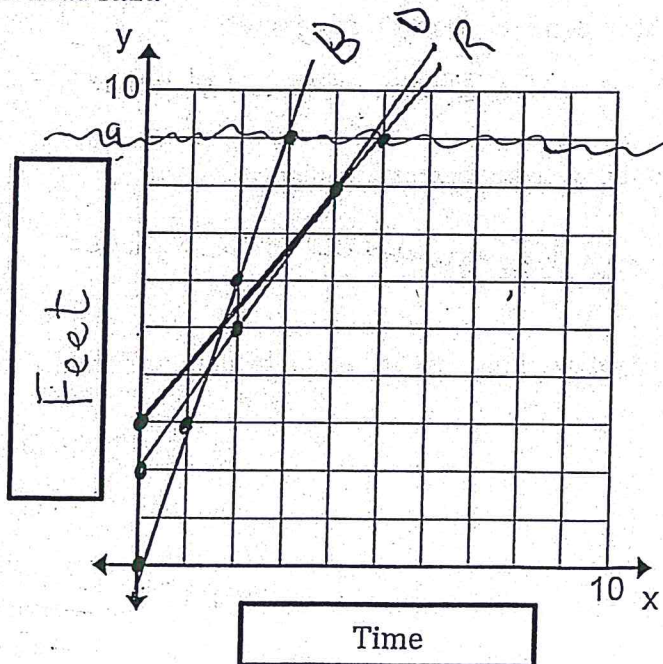
Rider:  $y = \frac{6}{5}x + 3$

Buckman:  $y = 3x$

Dunne:  $y = \frac{3}{2}x + 2$

If the finish line is 9 feet from the start, who won?  
 Show how you know.

Buckman won! she crossed  
 the finish line first.



7. Evaluate each expression for  $f(-7)$ .

(2 pts each, \_\_\_/6 pts)

a.  $f(x) = 2x^2 - 5x + 6$   
 $f(-7) = 2(-7)^2 - 5(-7) + 6$   
 $f(-7) = 2(49) + 35 + 6$   
 $f(-7) = 139$

b.  $f(x) = \frac{-9}{x+7}$   
 $f(-7) = \frac{-9}{-7+7}$   
 $f(-7) = \frac{-9}{0}$   
 Undefined!

c.  $f(x) = \frac{x+7}{-9}$   
 $f(-7) = \frac{-7+7}{-9}$   
 $f(-7) = \frac{0}{-9}$   
 $f(-7) = 0$

Using Dimensional Analysis to show how to use units to convert 90 miles per hour to feet per second.  
 (1 mile = 5280 feet.)

$$\frac{90 \text{ miles}}{1 \text{ hour}} \times \frac{5280 \text{ feet}}{1 \text{ mile}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times \frac{1 \text{ min}}{60 \text{ sec}} = 132 \frac{\text{feet}}{\text{sec}}$$

(\_\_\_/5 pts)

Below are the graphs of three relationships, A, B, and C.

9. Which graph represents a function?

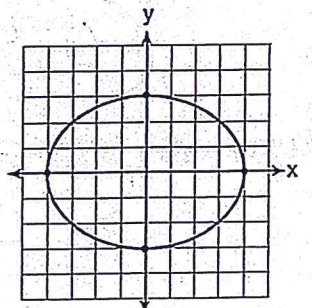
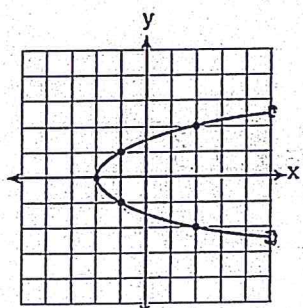
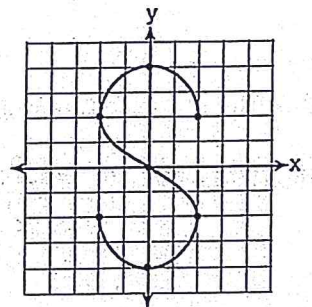
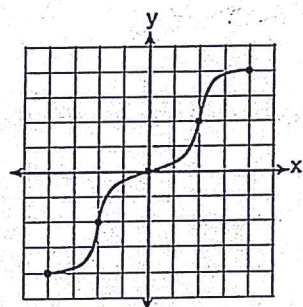
a. What is the domain of graph 1?  $-4 \leq x \leq 4$

b. Which has a range of only positive numbers?

None, they all dip into quadrant 3 and 4.

c. One of the above graphs is a function. Which one? Explain how you know.

Graph 1, for every input there is exactly 1 output.



(2 pts each, \_\_\_/6 pts)

10) Rewrite each expression into an equivalent expression which has no negative exponents.

(2 pts each, \_\_\_/8 pts)

a.  $\frac{16a^7b^3}{24a^8b^2} = \frac{2ab}{3}$

~~$\frac{2ab}{3}$~~

~~$\frac{2ab}{3}$~~

$\frac{2b}{3a}$

b.  $\frac{-7x^{35}}{(14x^{15})^0} = -7x^{35}$

c.  $(-6s^9t^4u)(-3s^2t^{-6})$

$18s^{11}t^{-2}u = \frac{18s^{11}u}{t^2}$

d.  $x^{-7} = \frac{1}{x^7}$

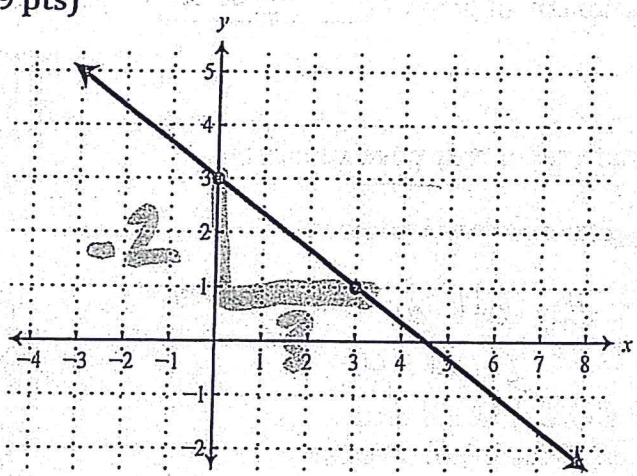
11) For the line graphed below: (3 pts each, \_\_\_/9 pts)

What is the slope?  $-\frac{2}{3}$

What is the y-intercept, write as a coordinate?

$(0, 3)$

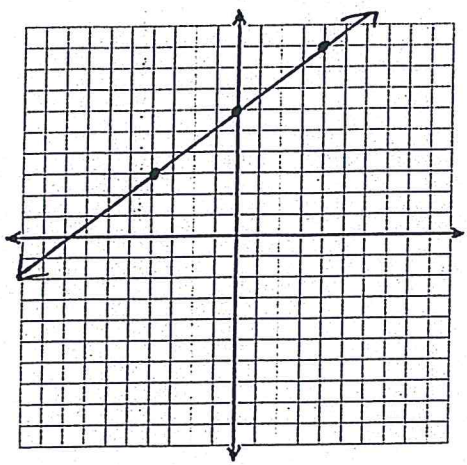
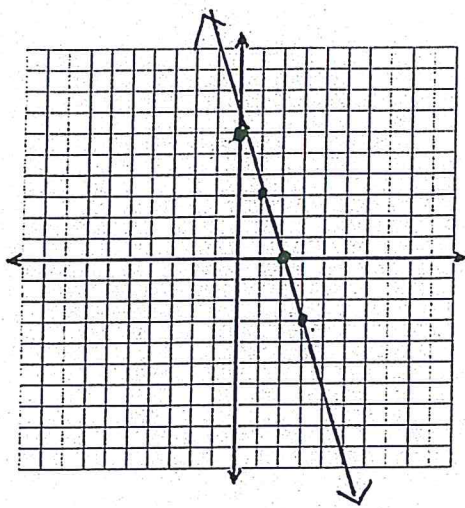
Write the equation.  $y = -\frac{2}{3}x + 3$



12) Given the information graph the three lines on the graph below. (3 pts each, \_\_\_/12 pts)

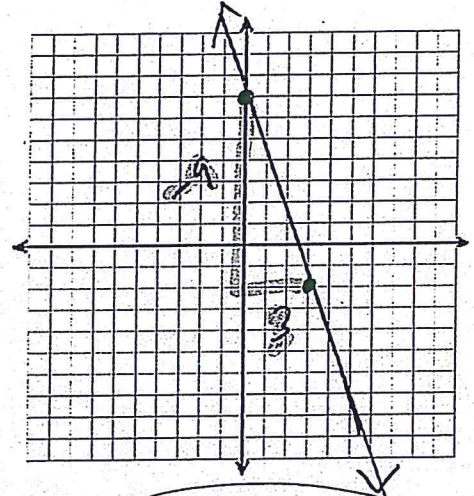
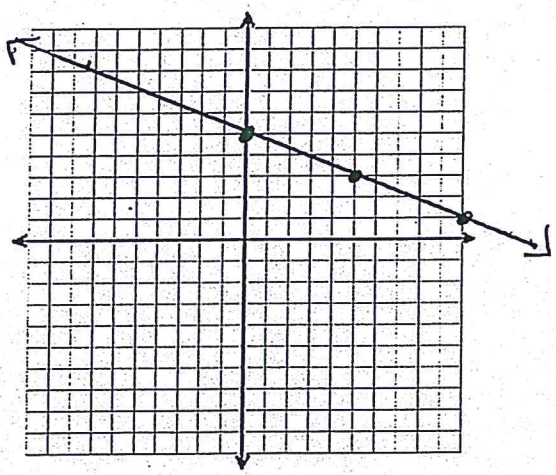
a.  $y = -3x + 6$

b. Point  $(-4, 3)$  is on a line with  $m = \frac{3}{4}$



c.  $m = -\frac{2}{5}$ ,  $y$ -int = 5

d. Plot  $(0, 7)$  and  $(3, -2)$ . From these points, what is the equation of the line?



Equation:  $y = -3x + 7$

slope =  $\frac{-9}{3} = -3$