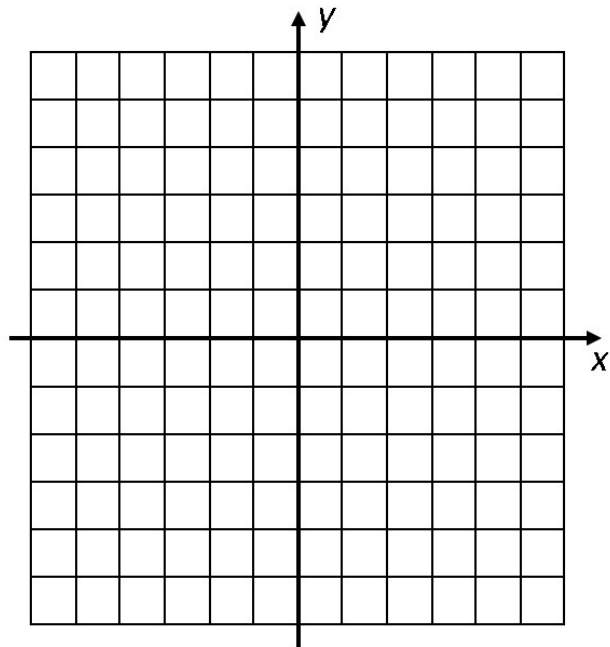


HOMEWORK: MATH INTERLUDES IX SLOPE-INTERCEPT FORM OF A LINE

Directions: Remember – as always, neatness and completeness count. Also, you must show your work. The correct result without a sufficient amount of correct and appropriate work is worth zero points. Please remember to include this assignment in your Math Interludes Notebook.

- 1) For each of the following liner equations, write the equation in slope-intercept form, and then use the slope and y-intercept to graph each equation.

a) $4y + 2x = 8$



b) $y + 1 = 3$

2) Write each equation in slope-intercept form. Identify the slope and y-intercept and then (without actually graphing) determine whether the graphs of the equations would be parallel, perpendicular, or neither.

a) $5y + 7x = 2$ and $-10x + 14y - 38 = 18$

b) $-2x + 3y = 27$ and $6y = 4x + 24$

c) $20 + 5y = 12x$ and $-9.6x + 4y - 6 = 0$

3) Find the equation of the line with a slope of -2 and passing through the point $(5, -3)$.

4) Find the equation of the line passing through the points $(-5, -8)$ and $(2, 13)$.

5) Find the equation of the line that passes through the point $(8, 9)$ and is parallel to the line $4y = 5x - 12$.

6) Find the equation of the line that passes through the point $(-2, 5)$ and is perpendicular to the line $3y - 2x - 7 = 8$.

7) For each of the following, identify the slope and y-intercept (including units) and interpret each within the context of the problem. Next find the linear equation relating the variables. Finally use the linear equation to answer the question(s).

- a) A local gym charges an initial fee of \$150 and \$16 per month. Express the cost of gym membership, y , in terms of the number of months, x .

$$m =$$

$$b =$$

Linear equation:

How much would it cost to be a gym member for 6 months?

- b) For your birthday, a friend gave you a \$30 Java Hut card. Java Hut charges \$3.75 per drink for your favorite beverage. If you only buy your favorite beverage, express the amount of money remaining on the card, y , in terms of the number of drinks, x , you purchase with the card.

$$m =$$

$$b =$$

Linear equation:

If \$18.75 is left on the card, how many drinks have you purchased with the card?

What is the maximum number of drinks you can buy with the card?

- 8) For each of the following, identify a pair of points and then use them to find a linear equation relating the variables. Identify the slope and y-intercept (including units) and interpret each. Finally use the linear equation to answer the question.

- a) It costs a local skateboard manufacturer \$1500 to make 25 skateboards in the first month of operation, and it costs \$1720 to make 30 boards in the second month of operation. Expresses the local manufacturer's production costs, y , in terms of the number, x , of skateboards made.

Two points:

$$m =$$

$$b =$$

Linear equation:

In the third month of operation, the skateboard manufacturer spent \$2,688 in production costs. How many skateboards did the local manufacturer produce?

- b) Private dance lessons cost \$405 for a 10-hour course and \$677 for an 18-hour course. Both prices include a fixed insurance fee. Expresses the cost, y , of dance lessons in terms of the length, x (in hours), of the course.

Two points:

$$m =$$

$$b =$$

Linear equation:

Assuming the same hourly rate, how much would a 12-hour course cost?

Math Interludes VII Homework:

2a) $y = -\frac{7}{5}x + \frac{2}{5}$
 $y = \frac{5}{7}x + 4$
perpendicular

2b) $y = \frac{2}{3}x + 9$
 $y = \frac{2}{3}x + 4$
parallel

2c) $y = 2.4x - 4$
 $y = 2.4x + 1.5$
parallel

3) $y = -2x + 7$

4) $y = 3x + 7$

5) $y = \frac{5}{4}x - 1$

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

7a) $m = \frac{\$16}{\text{month}}, b = \150
 $y = 16x + 150$
\$246 for 6 months

7b) $m = \frac{-\$3.75}{\text{drink}}, b = \30
 $y = -3.75x + 30$
3 drinks \$18.75 remains
Max # drinks = 8

8a) (25, 1500) and (30, 1720)
 $m = \frac{\$44}{\text{board}}, b = \400
 $y = 44x + 400$
52 boards

8b) (10, 405) and (18, 677)
 $m = \frac{\$34}{\text{hr}}, b = \65
 $y = 34x + 65$
\$473