

# Math 134 Algebra

## Review for Exam#2

Show all your work. If you use additional sheets of paper, then staple them together ("folding corners" will NOT be accepted). No work, no staple, NO POINT!

Name: \_\_\_\_\_ Due Date: \_\_\_\_\_

(Q1.) Solve the following equations or inequalities

(a)  $19x - 2(4x - 5) = x + 9$

(b)  $|3x - 12| + 22 = 9$

(c)  $x + 4(-3x + 5) > 4(4x + 3) + 6$

(d)  $20 \leq 8(x + 3) - 5(2x + 1)$

(e)  $|2x - 7| - 29 = -10$

(f)  $-\frac{1}{2}(2x + 4) = 9x - 4(2x + 3)$

(Q2.) Translate the followings into inequalities or equations then solve

(a) The sum of  $3x$  and  $9$  is at least  $51$

(b) The result of  $3x$  subtracted from  $44$  is at most  $8$

(c) The distance between  $x$  and  $-5$  is exactly  $2$

(Q3.) Find the **x-intercept**, **y-intercept** and **slope** of the following

(a)  $x - 7y = 35$

(b)  $y = \frac{3}{10}x - 6$

(c)  $y - 3 = -4(x + 9)$

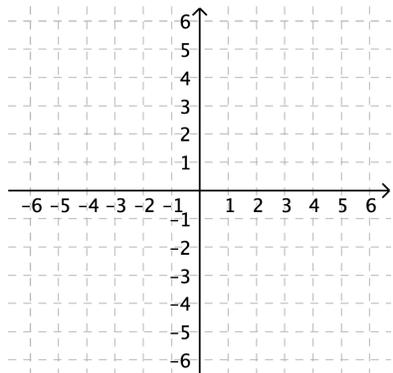
(Q4.) Determine if the following lines are parallel, perpendicular, or neither?

(a)  $y = 2x - \frac{4}{5}$  and  $y = -3x + \frac{5}{4}$

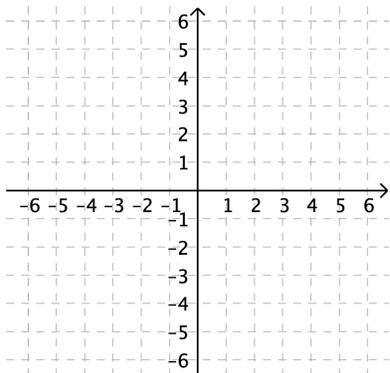
(b)  $y - 12 = 8(x + 1)$  and  $y + 3 = \frac{-1}{8}(x - 16)$

(Q5.) Graph the following equations

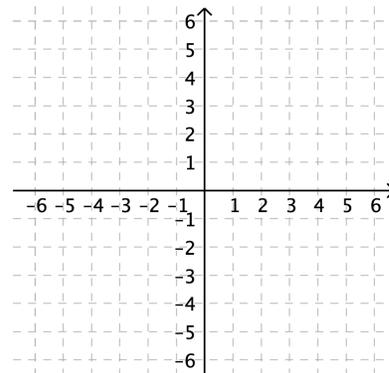
(a)  $y = -5$



(b)  $4x + 2y = 12$



(c)  $y + 4 = \frac{1}{2}(x + 8)$



(Q6.) Write an equation (in slope-intercept form) of the line with the following conditions

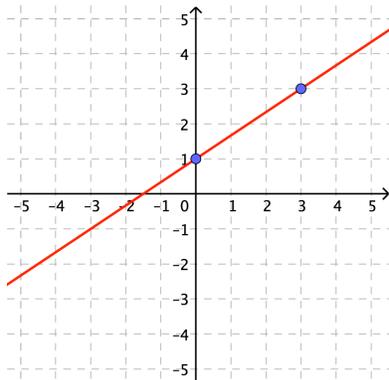
(a) passes through  $(-2, 7)$  and  $(-6, 37)$

(b) **parallel** to  $3x + 4y = 9$  and contains  $(8, -2)$

(c) **perpendicular** to  $y = \frac{-5}{2}x + 8$  and contains  $(4, 3)$

(Q7.) Determine the followings from the given graphs

(a)



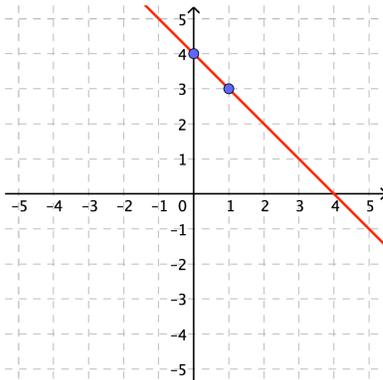
slope: \_\_\_\_\_

x-intercept: \_\_\_\_\_

y-intercept: \_\_\_\_\_

equation: \_\_\_\_\_

(b)



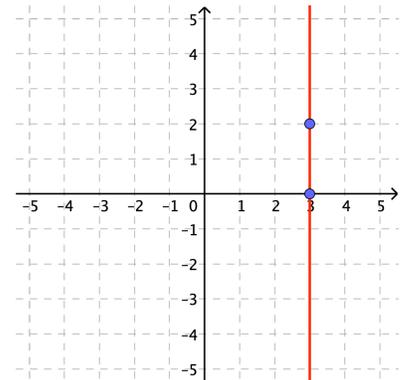
slope: \_\_\_\_\_

x-intercept: \_\_\_\_\_

y-intercept: \_\_\_\_\_

equation: \_\_\_\_\_

(c)



slope: \_\_\_\_\_

x-intercept: \_\_\_\_\_

y-intercept: \_\_\_\_\_

equation: \_\_\_\_\_

(Q8.) Determine if weather the given table represents the values of a linear function

(a)

x	2	4	6	8
y	10	8	6	4

(b)

x	0	1	2	3
y	7	14	28	56

(Q9.) In a dorm meal plan, you first pay a membership fee then all your meals are at a fixed price per meal. If 80 meals cost \$1050 and 120 meals cost \$1400, then...

(a) Write a **linear function** that describe the cost of \$y for x number of meals.

Explain the meaning of the **slope** of the **y-intercept** in this context

(b) How many meals can you have if you only have \$920 to spend?

(Q10.) You want to start selling you own t-shirts and will be a starting cost and also the cost per t-shirt. If it costs \$770 to produce 100 t-shirts and \$1120 to produce 200 t-shirts.

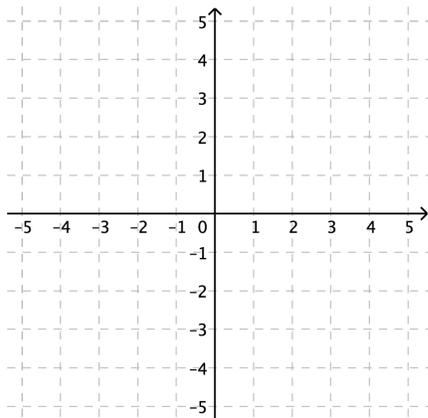
(a) Write a **linear function** that describe the cost of \$y for x number of t-shirts.

Explain the meaning of the **slope** of the **y-intercept** in this context

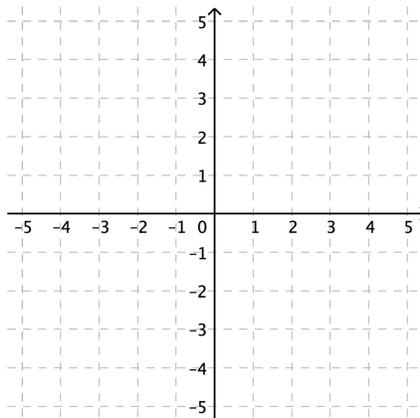
(b) How much does it cost to produce 300 t-shirts?

(Q11.) Solve by **graphing**

$$(a) \begin{cases} x + y = 4 \\ -12x + 4y = 0 \end{cases}$$



$$(b) \begin{cases} 2x + 6y = 18 \\ 2x + 3y = 6 \end{cases}$$



(Q12.) Solve the following system of equations by either **substitution** or **elimination**

$$(a) \begin{cases} 3x - 2y = 10 \\ 4x + 2y = 11 \end{cases}$$

$$(b) \begin{cases} 2x - 6y = 79 \\ 10x + 2y = -5 \end{cases}$$

$$(a) \begin{cases} x - 2y = 10 \\ -2x + 4y = 4 \end{cases}$$

$$(b) \begin{cases} x = 8y - 2 \\ 3x + 4y = 0 \end{cases}$$

(Q13.) You want to build a patio. Builder A charges \$4.5 a square foot plus a \$480 flat fee while Builder B charges \$3.75 a square foot plus a \$720 flat fee. For **what size** patio will both builders charge the same?

(Q14.) At an In-N-Out restaurant, Tom buys 5 cheeseburgers and 8 orders of fries for his family that costs him a total of \$22.45. Meanwhile Bob buys 9 cheeseburgers and 6 orders of fries for his family that costs him a total of \$28.65. How much does a **cheeseburger** cost at that In-N-Out?