

Pre-Algebra
U7L4 (8-4) Practice

Name: KEY

1. Write a function to represent the following situations.

- a. You give a salesperson \$20 for a purchase and receive change. Write a function where p represents the amount of the purchase and $c(p)$ represents the amount of change you receive.

$p \rightarrow$ purchase

$$c(p) = 20 - p$$

$c(p) \rightarrow$ change

$$c(p) = -p + 20$$

Use your function to find how much change you would receive from a \$4.50 purchase.

$$c(4.5) = 20 - 4.5$$

$$= \boxed{\$15.50}$$

- b. Write a function to represent the total number of miles you walk, represented by $m(r)$, if you walk 7 miles before lunch, and you walk for 2 hours at r mi/hr after lunch.

$r \rightarrow$ mile (rate)

$$m(r) = 7 + 2r$$

$m(r) \rightarrow$ total miles

$$m(r) = 2r + 7$$

Use your function to find the total miles you would walk if you walk at 3.8 mi/hr after lunch

$$m(3.8) = 2(3.8) + 7$$

$$= 7.6 + 7$$

$$= \boxed{14.6 \text{ mi}}$$

2. Use the following tables to write a function.

x	f(x)
-9	-18
0	-9
9	0
18	9

$$m = \frac{9}{9} = 1$$

$$b = -9$$

$$f(x) = x - 9$$

x	f(x)
-4	4
-2	2
0	0
2	-2

$$m = \frac{-2}{2} = -1$$

$$b = 0$$

$$f(x) = -x$$

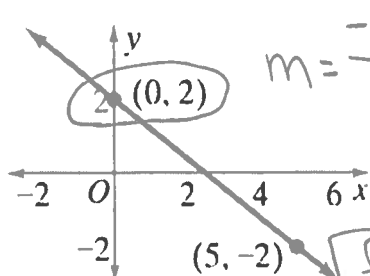
x	f(x)
-4	4
0	6
2	7
4	8

$$m = \frac{2}{4} = \frac{1}{2}$$

$$b = 6$$

$$f(x) = \frac{1}{2}x + 6$$

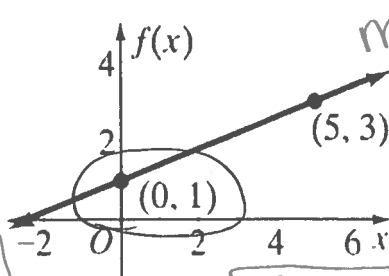
3. Use the following graphs to write a function.



$$m = \frac{-2 - 2}{5 - 0} = -\frac{4}{5}$$

$$b = 2$$

$$f(x) = -\frac{4}{5}x + 2$$



$$m = \frac{3 - 1}{5 - 0} = \frac{2}{5}$$

$$b = 1$$

$$f(x) = \frac{2}{5}x + 1$$

4. Write a function that has the given slope m and y-intercept b .

a. $m = 0$ and $b = 2$.

$$f(x) = 0x + 2$$

b. $m = -\frac{1}{3}$ and $b = -4$

$$f(x) = 2 \rightarrow \text{horizontal line}$$

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

5. Write a function with the given slope m that goes through the given point. (Use slope-intercept form to find the y-intercept.)

a. $m = 3$ and goes through the point $(-2, -2)$

$$f(x) = 3x + 4$$

$$-2 = 3(-2) + b$$

$$-2 = -6 + b$$

$$4 = b$$

b. $m = -\frac{1}{4}$ and goes through the point $(4, 0)$

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

$$0 = -\frac{1}{4}(4) + b$$

$$0 = -1 + b$$

$$1 = b$$

6. Write a function that goes through the two points.

Step 1: find slope using formula

Step 2: find y-intercept using slope-intercept form

Step 3: write function

a. $(1, 1)$ and $(2, 5)$

$$\textcircled{1} m = \frac{5-1}{2-1} = \frac{4}{1} = 4$$

$$\textcircled{2} 1 = 4(1) + b$$

$$1 = 4 + b$$

$$-3 = b$$

$$\textcircled{3} f(x) = 4x - 3$$

b. $(10, 8)$ and $(25, 5)$

$$\textcircled{1} m = \frac{5-8}{25-10} = \frac{-3}{15} = -\frac{1}{5}$$

$$\textcircled{2} 8 = -\frac{1}{5}(10) + b$$

$$8 = -2 + b$$

$$10 = b$$

$$\textcircled{3} f(x) = -\frac{1}{5}x + 10$$