

Name: solutions

40

Precalc 10

Chapter 6 TEST  
CALCULATOR PART

1. Between January 2010 and August 2010, Shannon's balance on her bank account increased by \$75 each month. In May 2010, she had \$534 on her bank account.

a) Determine the balance on her bank,  $s$ , as a function of the number of months,  $n$ , since December 2009.

$$s - 534 = 75(n - 5)$$

$$s - 534 = 75n - 375$$

$$s = 75n + 159$$

b) How much money did she have in August 2010?

$$s = 75(8) + 159$$

$$s = \$759$$

2. Francine has a T-shirts company. When people order T-shirts, she charges \$50 plus \$8.95 per T-shirt ordered.

a) Write an equation of the total cost,  $C$ , in dollars, for an order of  $n$  T-shirts.

$$C = 8.95n + 50$$

b) Marnell ordered 62 T-shirts. What was the total cost?

$$C = 8.95(62) + 50$$

$$C = \$604.90$$

c) Jakub paid \$971.85 for his order. How many T-shirts did he order?

$$971.85 = 8.95n + 50$$

$$921.85 = 8.95n$$

$$n = \frac{921.85}{8.95}$$

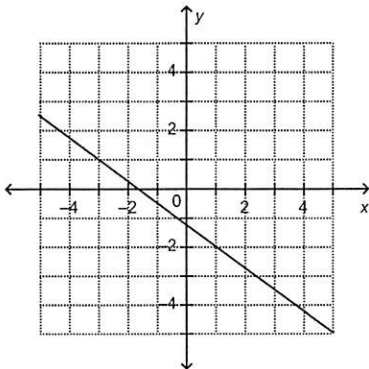
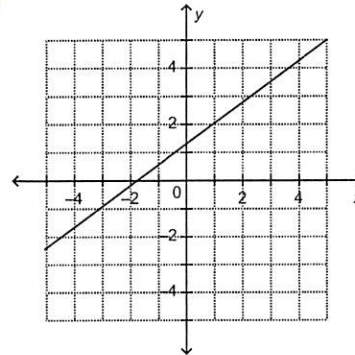
$$n = 103$$

### Chapter 6 TEST NON CALCULATOR PART

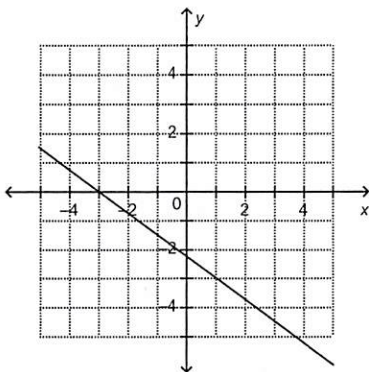
## Multiple Choices

C 3. Which one is the graph of  $y + 1 = \frac{3}{4}(x + 3)$ ?

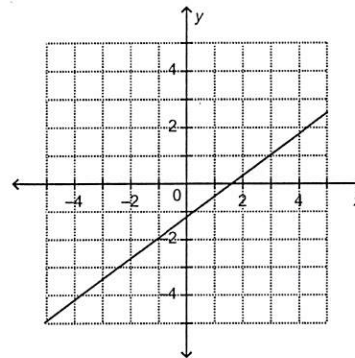
A.

C.

B.



D.



## Free Response Questions:

4. Determine the slope of the line that passes through G (3, -3) et H (-5, 9).

$$m = \frac{9 - (-3)}{-5 - 3} = \frac{12}{-8} = \boxed{-\frac{3}{2}}$$

5. Which of the following are linear functions? Explain why they are not, when relevant.

a)  $y = 2$  ✓

b)  $f(x) = 2x^2 + 3$  x (exponent)

c)  $y = -5 + 2x$  ✓

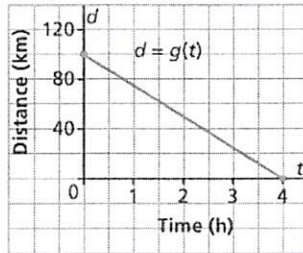
d)  $x = -1$  x (linear but not a function)

6. I) Determine if the following functions are linear. Justify your answer.  
 II) If it is linear, determine the rate of change.  
 a)  $\{(0, 2), (2, 4), (4, 2), (6, 4), (8, 2), (10, 4)\}$

1

$\begin{matrix} \xrightarrow{+2} \uparrow \xrightarrow{-2} \\ \text{not linear} \end{matrix}$

b)



I) yes (straight line)

II)  $r = -\frac{100}{4} = -25 \text{ km/h}$

2

a) (fill in the last box in the table)

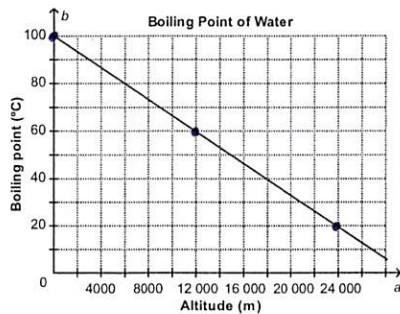
	x	y	
-3	7	-4	-3
-3	4	-7	-3
-3	1	-10	-3
-3	-2	-13	-3
-6	-8	-19	-6

I) yes  $\frac{\Delta y}{\Delta x}$  is always the same.

II)  $r = \frac{-3}{-3} = 1$

2

7. Determine the equation of the following linear function..

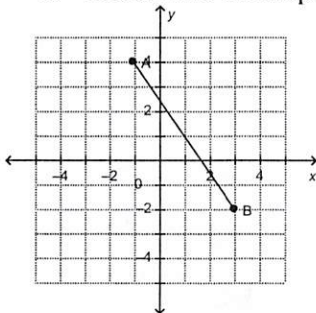


slope:  $\frac{-40}{12000} = -\frac{1}{300}$  y-int: 100

$b = -\frac{1}{300}a + 100$

2

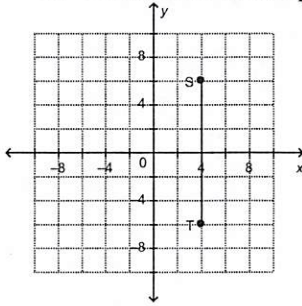
8. Determine the slope of the following line segment.



$m_{AB} = -\frac{6}{4} = \boxed{-\frac{3}{2}}$

1

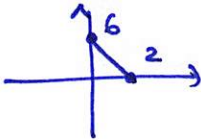
9. Determine the slope of the following line segment.



undefined

1

10. Determine the slope of a line that has a y-intercept of 6 and an x-intercept of 2.



$$m = -\frac{6}{2} = \boxed{-3}$$

1

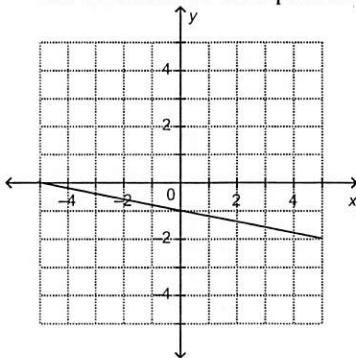
11. A line passes through J (-10, 10) and K (7, -9). Determine the coordinates of a point L such that line JL is perpendicular to line JK.

$$m_{JK} = \frac{-9-10}{7-(-10)} = -\frac{19}{17} \quad m_{JL} = \frac{17}{19}$$

for ex: L(9, 27)

1

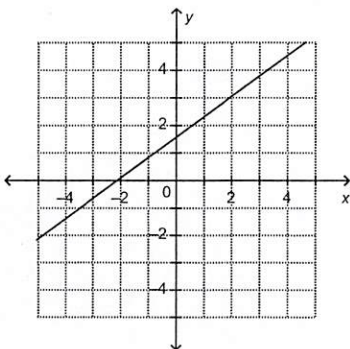
12. Determine an equation of the following line.



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

2

13. Determine an equation in general form of the following line.



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

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

$$4y - 12 = 3x - 6$$

$$\boxed{3x - 4y + 6 = 0}$$

2



14. Determine the value of  $y$  when  $x = 10$  for  $y = -\frac{7}{2}x - 4$ .

$$y|_{x=10} = -\frac{7}{2}(10) - 4$$

$$y|_{x=10} = -39$$

15. Write the following equation in slope-intercept form:  $y - 3 = -\frac{1}{5}(x + 2)$

$$y - 3 = -\frac{1}{5}x - \frac{2}{5}$$

$$y = -\frac{1}{5}x + \frac{13}{5}$$

16. If a line passes through A  $(-2, 4)$  and B  $(-9, 6)$ , what is its  $y$ -intercept?

$$y - 6 = -\frac{2}{7}(x + 9)$$

$$m = \frac{6 - 4}{-9 - (-2)} = -\frac{2}{7}$$

$$y = -\frac{2}{7}x - \frac{18}{7} + 6$$

$$y = -\frac{2}{7}x + \frac{24}{7}$$

$$\Rightarrow y\text{-int: } \frac{24}{7}$$

17. Determine the  $x$ - and  $y$ -intercepts of  $5x + 6y - 8 = 0$

$$y\text{-int: } 5(0) + 6y - 8 = 0$$

$$6y = 8$$

$$y = \frac{4}{3}$$

$$x\text{-int: } 5x + 6(0) - 8 = 0$$

$$5x = 8$$

$$x = \frac{8}{5}$$

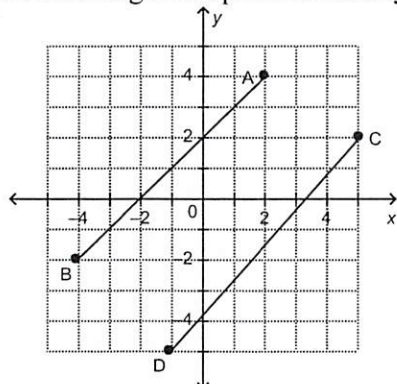
18. Determine the slope of the following line:  $7x + 3y + 5 = 0$

$$3y = -7x - 5$$

$$y = -\frac{7}{3}x - \frac{5}{3}$$

$$\Rightarrow m = -\frac{7}{3}$$

19. Are these segments parallel? Justify your answer.

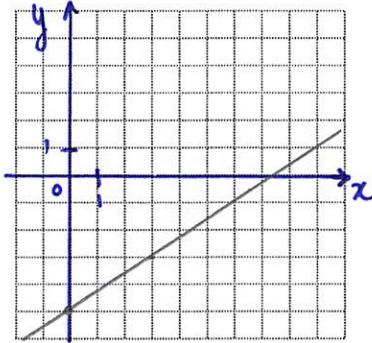


$$m_{AB} = \frac{6}{6} = 1$$

$$m_{CD} = \frac{7}{6} \neq 1 \Rightarrow \underline{\text{Not parallel}}$$

20. Graph the following lines without changing the form of their equation.

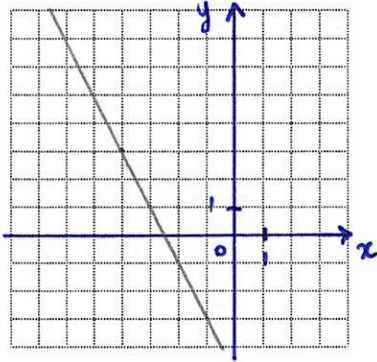
a)  $y = \frac{2}{3}x - 5$



slope:  $\frac{2}{3}$

y-int:  $-5$

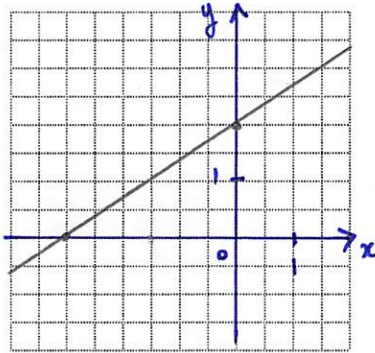
b)  $y - 3 = -2(x + 4)$



slope:  $-2$

point:  $(-4, 3)$

c)  $2x - 3y + 6 = 0$



x-int:  $2x + 6 = 0$

$$x = -3$$

y-int:  $-3y + 6 = 0$

$$y = 2$$

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