

1. Determine the slope for each linear function represented below:

(A)

$x$	0	2	4	6
$y$	0.25	1	1.75	2.5

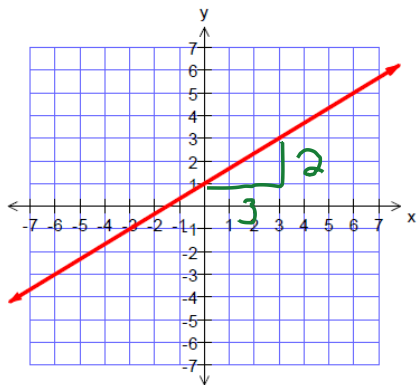
$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2.5 - 1}{6 - 2} = \frac{1.5}{4} = 0.375$$

(B) (0, 3), (1, 6), (2, 9), (3, 12)

$x_1, y_1, x_2, y_2$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 3}{1 - 0} = \frac{3}{1} = 3$$

(C)

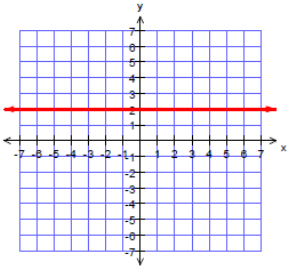


$$m = \frac{\text{rise}}{\text{run}} = \frac{1}{3}$$

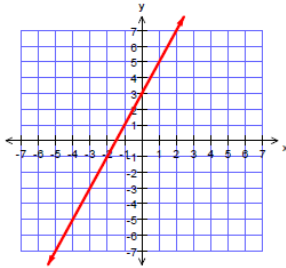
2. Match the graphs shown with the statements below:

- (i) Positive Slope: Graph B
- (ii) Negative Slope: Graph C
- (iii) Slope = 0: Graph A
- (iv) Slope is undefined: Graph D

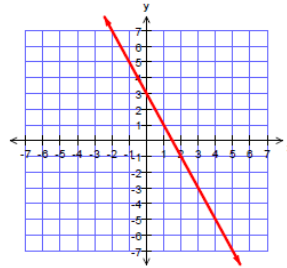
(A)



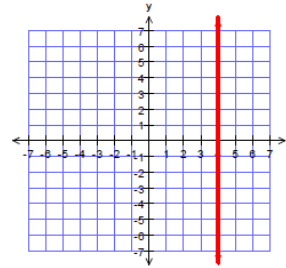
(B)



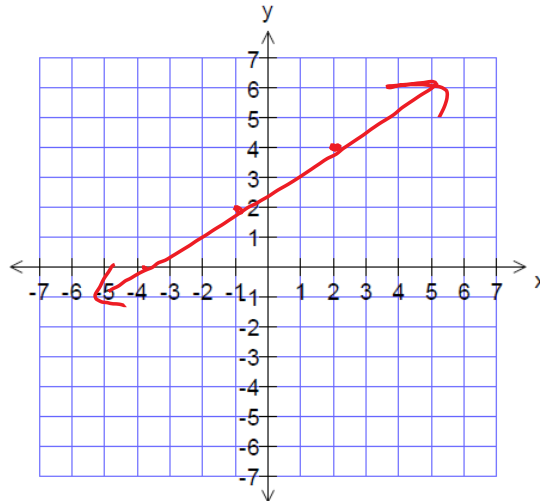
(C)



(D)



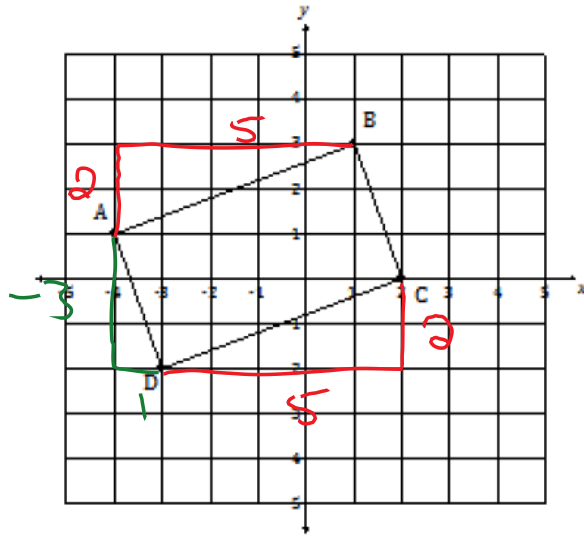
3. Draw a line (on the grid provided) that passes through the point  $(-1, 2)$  and has a slope of  $\frac{2}{3}$ . *rise* *run*  $\times y$



4. Mary charges \$42.50 for babysitting for 5 hours, and \$62.00 for babysitting for 8 hours. What is the average cost per hour for babysitting?

$$\begin{aligned}
 & (5, 42.5), (8, 62) \\
 & \begin{matrix} x_1 & y_1 & & x_2 & y_2 \end{matrix} \\
 & m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{62 - 42.5}{8 - 5} = \frac{19.5}{3} = 6.5 \quad \$6.50/h
 \end{aligned}$$

5. Consider the following graph:



(A) Is  $\overline{AB}$  parallel to  $\overline{CD}$ ? Justify your answer.

$$m_{\overline{AB}} = \frac{\text{rise}}{\text{run}} = \frac{2}{5}$$

$$m_{\overline{CD}} = \frac{\text{rise}}{\text{run}} = \frac{2}{5}$$

$$m_{\overline{AB}} = m_{\overline{CD}}, \therefore \overline{AB} \parallel \overline{CD}$$

(B) Is  $\overline{AB}$  perpendicular to  $\overline{AD}$ ? Justify your answer.

$$m_{\overline{AD}} = \frac{\text{rise}}{\text{run}} = \frac{3}{1} = 3$$

$$\therefore \overline{AB} \not\perp \overline{AD}$$

6. The slope of  $\overline{AB}$  is  $\frac{3}{5}$ . The slope of  $\overline{CD}$  is  $\frac{x}{4}$ .

(A) Determine the value of  $x$  if  $\overline{AB}$  is parallel to  $\overline{CD}$ .

$$\begin{array}{l} \frac{3}{5} \neq \frac{x}{4} \\ 3 \cdot 5x = 12 \\ 5x = 12 \\ x = \frac{12}{5} \end{array}$$

(B) Determine the value of  $x$  if  $\overline{AB}$  is perpendicular to  $\overline{CD}$ .

$$\begin{array}{l} -\frac{5}{3} \neq \frac{x}{4} \\ 3x = -20 \\ \frac{3x}{3} = \frac{-20}{3} \\ x = -\frac{20}{3} \end{array}$$

7.  $\overline{AB}$  is parallel to  $\overline{CD}$ . If the slope of  $\overline{CD}$  is  $\frac{1}{2}$ , and points  $(x, 2)$  and  $(4, 3)$  lie on the line  $\overline{AB}$ , determine the value of  $x$ .

$x_1, y_1, x_2, y_2$

$$\begin{array}{l} m = \frac{y_2 - y_1}{x_2 - x_1} \\ \frac{1}{2} = \frac{3 - 2}{4 - x} \\ \frac{1}{2} \neq \frac{1}{4 - x} \\ 2 = 4 - x \\ x = 4 - 2 \\ x = 2 \end{array}$$

8. For each equation given, identify the slope and y-intercept, then match the equation with its' corresponding graph.

(i)  $y = -3x + 1$

y - intercept: 1  
 slope: : -3  
 Matches Graph: C

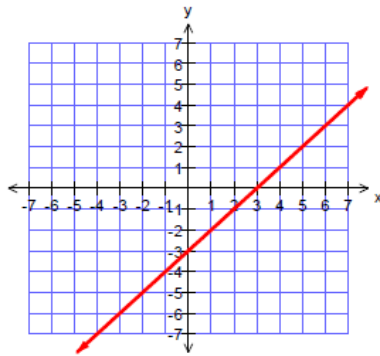
(ii)  $y = x - 3$

y - intercept: -3  
 slope: : 1  
 Matches Graph: A

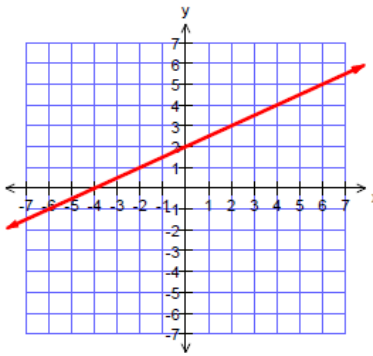
(iii)  $y = \frac{1}{2}x + 2$

y - intercept: 2  
 slope: : 1/2  
 Matches Graph: B

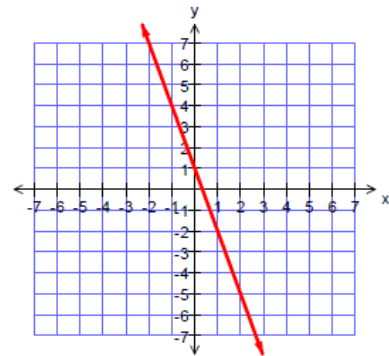
(A)



(B)

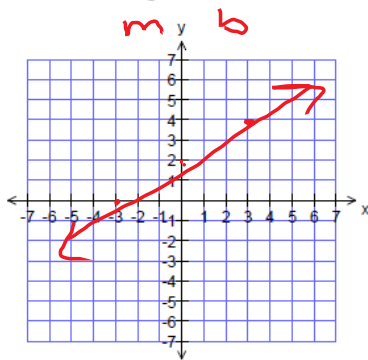


(C)

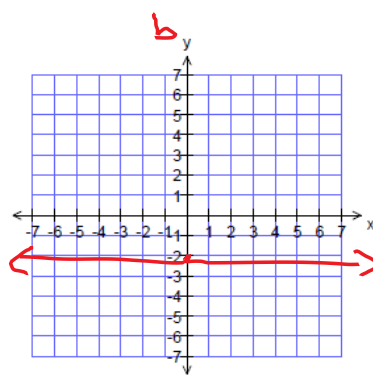


9. Graph each equation on the grid provided.

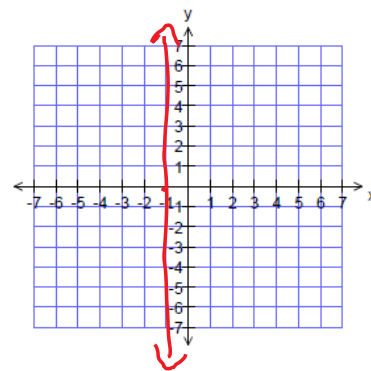
(A)  $y = \frac{2}{3}x + 2$



(B)  $y = -2$

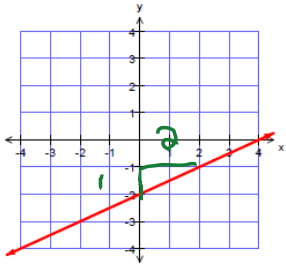


(C)  $x = -1$



10. Write an equation for each graph shown.

(A)

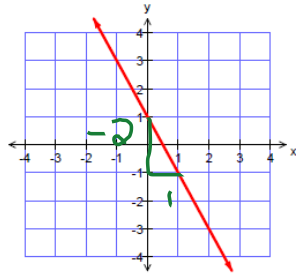


$$m = \frac{1}{2}$$

$$b = -2$$

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

(B)

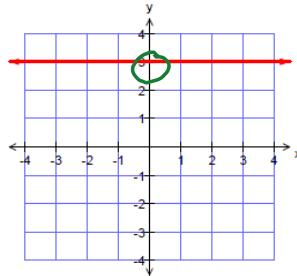


$$m = -2$$

$$b = 1$$

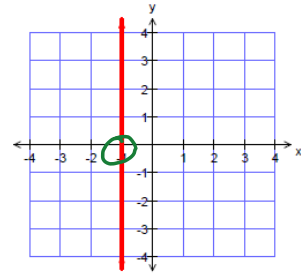
$$y = -2x + 1$$

(C)



$$y = 3$$

(D)



$$x = -1$$

11. Write the equation of a line, in slope-intercept form, that passes through the points (1,9) and (-2,3).

$x_2, y_2$

$x_1, y_1$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{3 - 9}{-2 - 1}$$

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

$$m = 2$$

$$9 = 2(1) + b$$

$$9 - 2 = b$$

$$b = 7$$

$$y = mx + b$$

$$y = 2x + 7$$