



**Unit 2 Test Practice Algebra 1**

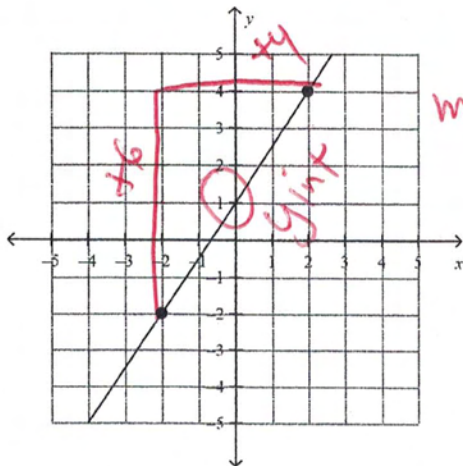
**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

Write the slope-intercept form of the equation for the line.

D

1.



$m = \frac{6}{4} = \frac{3}{2}$

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

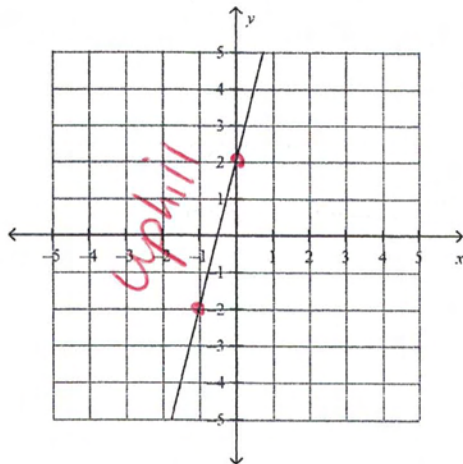
c.  $y = \frac{2}{3}x + 1$

b.  $y = -\frac{3}{2}x + 1$

d.  $y = \frac{3}{2}x + 1$

A

2. What do you expect the slope of the line to be from looking at the graph?

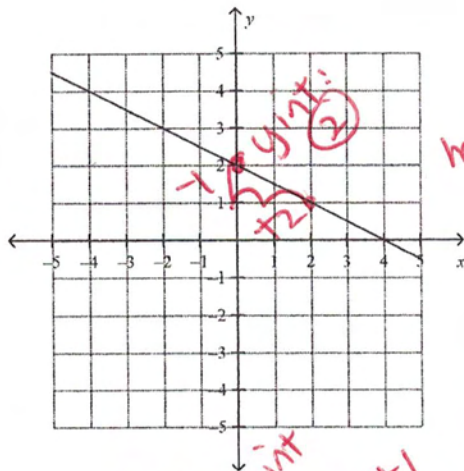


a. The slope is positive

b. The slope is negative

B

3. The graph below represents one function, and the table represents a different function. How are the functions similar? How are they different?



x	-2	-1	0	1	2
y	0	1	2	3	4

- a. The function have the same slope and the same  $y$ -intercept.  
 b.  The functions have the same  $y$ -intercept but different slopes.  
 c. The functions have the same slope, but different  $y$ -intercepts.  
 d. The functions are both linear, but have different slopes and different  $y$ -intercepts.

What are the slope and  $y$ -intercept of the graph of the given equation?

$y = mx + b$

D

4.  $y = -8x + 6$   
 a. The slope is  $-6$  and the  $y$ -intercept is  $-8$ .  
 b. The slope is  $8$  and the  $y$ -intercept is  $-6$ .  
 c. The slope is  $6$  and the  $y$ -intercept is  $-8$ .  
 d.  The slope is  $-8$  and the  $y$ -intercept is  $6$ .

C

5. Which equation's graph is a vertical line?  
 a.  $3x + 3y = 0$   
 b.  $3x - 3y = 0$

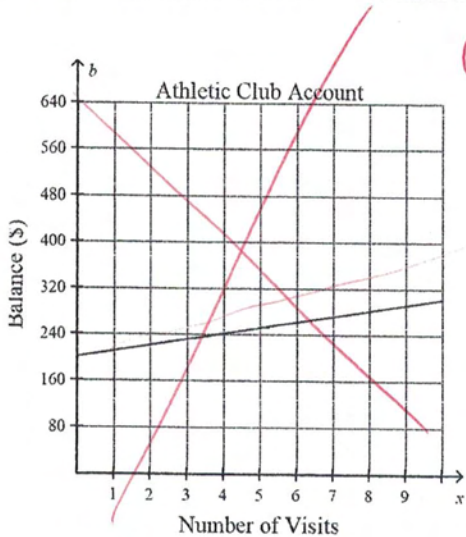
c.   $4x = 12$   
 d.  $y = -2$

make a cross  
 horiz

C

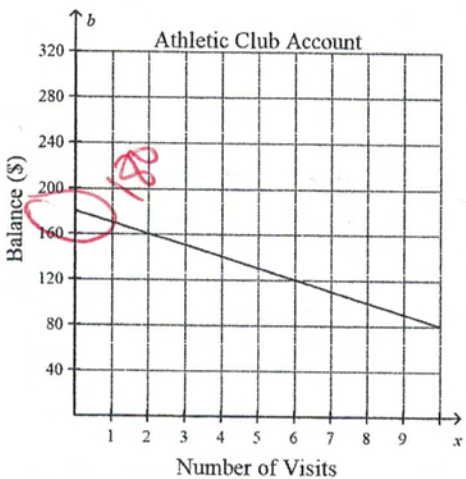
6. Giselle pays \$190 in advance on her account at the athletic club. Each time she uses the club, \$10 is deducted from the account. Model the situation with a linear function and a graph.

a.



$b = 180 + 10x$

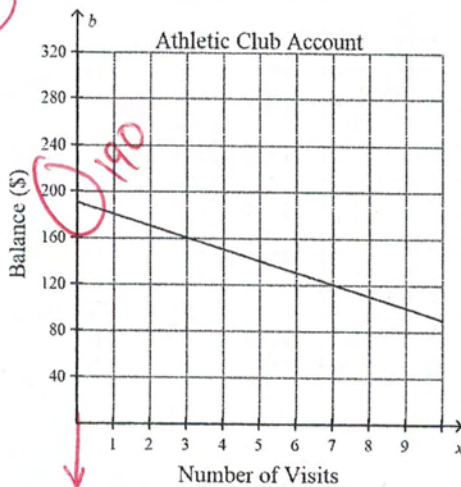
b.



$b = 180 - 10x$

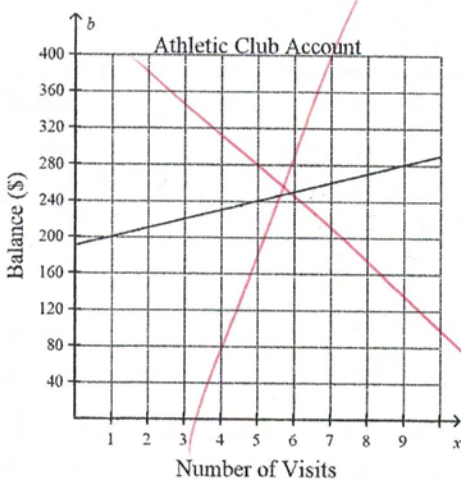


c.



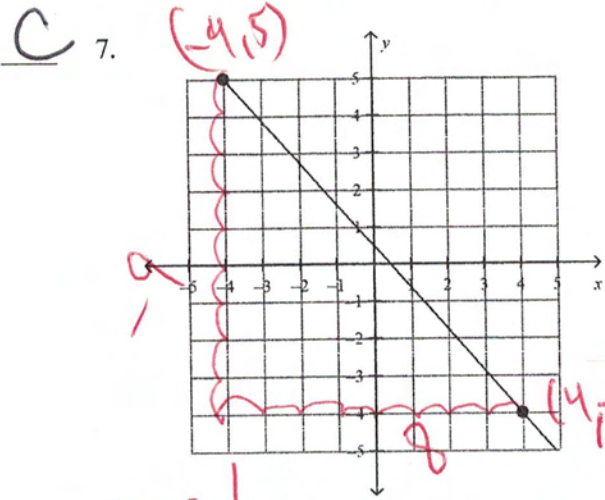
$b = 190 - 10x$

d.



$b = 190 + 10x$

What is an equation of the line?



~~a.~~  $y - 4 = \frac{9}{8}(x + 4)$

~~b.~~  $y - 4 = \frac{1}{2}(x + 5)$

$m = -\frac{9}{8}$

c.  $y - 5 = -\frac{9}{8}(x + 4)$

d.  $y - 5 = -\frac{8}{9}(x + 4)$

Write an equation for the line through the given point with the given slope.

C 8.  ~~$x, y_1$~~   $(-1, -9); m = -\frac{3}{2}$

$y - y_1 = m(x - x_1)$   $\left\{ \begin{array}{l} y - -9 = -\frac{3}{2}(x - -1) \\ y + 9 = -\frac{3}{2}(x + 1) \end{array} \right.$

a.  $y - 9 = -\frac{3}{2}(x - 1)$

c.  $y + 9 = -\frac{3}{2}(x + 1)$

b.  $y + 1 = -\frac{3}{2}(x + 9)$

d.  $y - 9 = -\frac{3}{2}(x + 1)$

D 9. Which equation in point-slope form is equivalent to  $y = -\frac{3}{4}x + 9$ ?  $(0, 9)$

~~a.~~  $y - \frac{3}{4} = 9(x - 0)$

b.  $y - 1 = -\frac{3}{4}(x - 9)$

~~c.~~  $y - 1 = 9(x + \frac{3}{4})$

d.  $y - 9 = -\frac{3}{4}(x - 0)$

$y - 9 = -\frac{3}{4}x$

$y = -\frac{3}{4}x + 9$

A

10. The table shows the height of a plant as it grows. What equation in point-slope form gives the plant's height at any time? Let  $y$  stand for the height of the plant in cm and let  $x$  stand for the time in months.

Time (months)	Plant Height (cm)
3	27
5	45
7	63
9	81

$\frac{18}{2} = 9$

a.  $y - 27 = 9(x - 3)$

c.  $y - 3 = \frac{9}{2}(x - 27)$

b.  $y - 27 = \frac{9}{2}(x - 3)$

d. The relationship cannot be modeled.

Find the  $x$ - and  $y$ -intercept of the line.

D

11.  $3x - 7y = 84$

a.  $x$ -intercept is  $-7$ ;  $y$ -intercept is  $3$

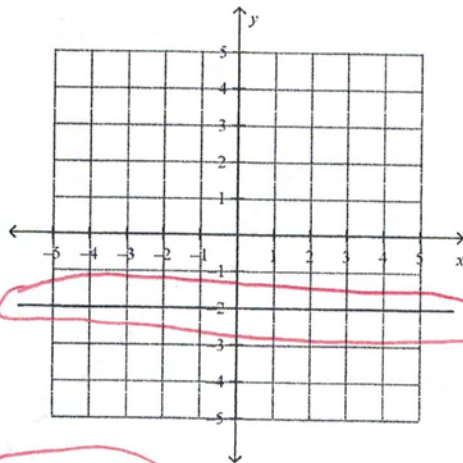
c.  $x$ -intercept is  $3$ ;  $y$ -intercept is  $-7$

b.  $x$ -intercept is  $-12$ ;  $y$ -intercept is  $28$

d.  $x$ -intercept is  $28$ ;  $y$ -intercept is  $-12$

A

12. Which equation matches the graph?



$y = \#$   
 $y = -2$

a.  $-2y = 4$

c.  $x + y = -2$

b.  $-2x = 4$

d.  $y = -2x$

$\frac{-2y = 4}{-2} \rightarrow y = -2$

B 13. The grocery store sells dates for \$4.75 a pound and pomegranates for \$2.25 a pound. Write an equation in standard form for the weights of dates  $d$  and pomegranates  $p$  that a customer could buy with \$14.

- a.  $4.75d = 2.25p + 14$       c.  $4.75 + 2.25 = d$   
 b.  $4.75d + 2.25p = 14$       d.  $4.75p + 2.25d = 14$

D 14. The slope of line  $m$  is  $\frac{3}{8}$ . Line  $n$  is perpendicular to line  $m$ . What is the slope of line  $n$ ?

- a.  $\frac{3}{8}$       c.  $\frac{8}{3}$   
 b.  $-\frac{3}{8}$       d.  $-\frac{8}{3}$
- 3/8 neg reciprocal*

Tell whether the lines for each pair of equations are parallel, perpendicular, or neither.

B 15.  $y = \frac{7}{4}x - 1$       *slope*

$16x - 28y = -32$   
 $-\frac{16x}{-16} = \frac{-32}{-16}$        $-28y = -16x - 32$   
 $y = \frac{-16x - 32}{-28}$        $-\frac{16}{-28} \rightarrow \frac{16}{28} \rightarrow \frac{8}{14} \rightarrow \frac{4}{7}$       *4/7*

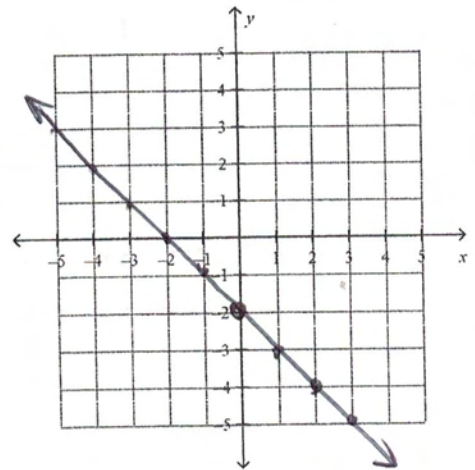
a. parallel      b. perpendicular      c. neither

Short Answer

Graph the equation.

16.  $y = -x - 2$

*slope: -1*  
*y-intercept*



Name: \_\_\_\_\_

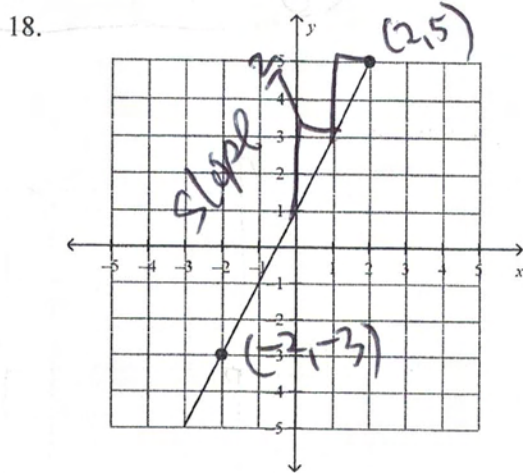
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Write an equation of a line with the given slope and y-intercept.

17.  $m = -5, b = -7$

$$y = -5x - 7$$

What is an equation of the line?

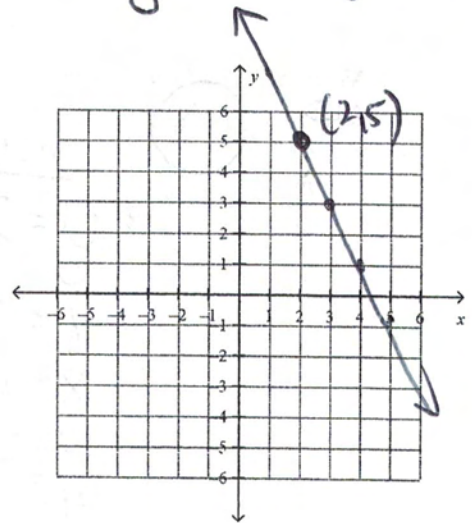


Graph the equation using point-slope form.

19.  $y - 5 = -2(x - 2)$

$y_1 = 5$        $x_1 = 2$   
 $m = -\frac{2}{1}$

or  $y + 3 = 2(x + 2)$   
 $y - 5 = 2(x - 2)$



Write an equation for the line through the given point with the given slope.

20.  $(4, -6); m = -8$

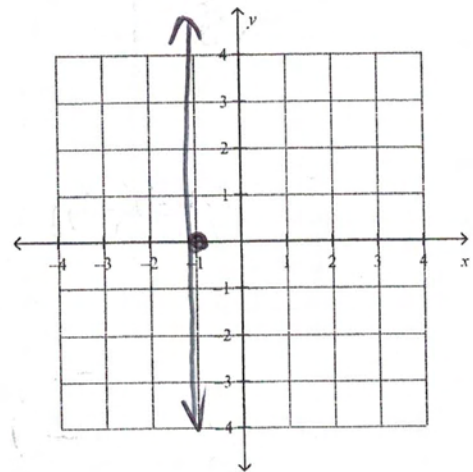
$$y - y_1 = m(x - x_1)$$

$$y + 6 = -8(x - 4)$$

Graph of the equation.

21.  $x = -1$

make a cross...



Write an equation for the line that is parallel to the given line and passes through the given point.

22.  $y = 2x + 5$  (2, 8)

OLD  
↑

new  
X, y  
→

$$\begin{aligned} \text{new} \\ y &= 2x + b \\ 8 &= 2(2) + b \\ 8 &= 4 + b \\ \underline{-4} \quad \underline{-4} \\ 4 &= b \end{aligned}$$

$$\therefore y = 2x + 4$$



Write the equation of a line that is perpendicular to the given line and that passes through the given point.

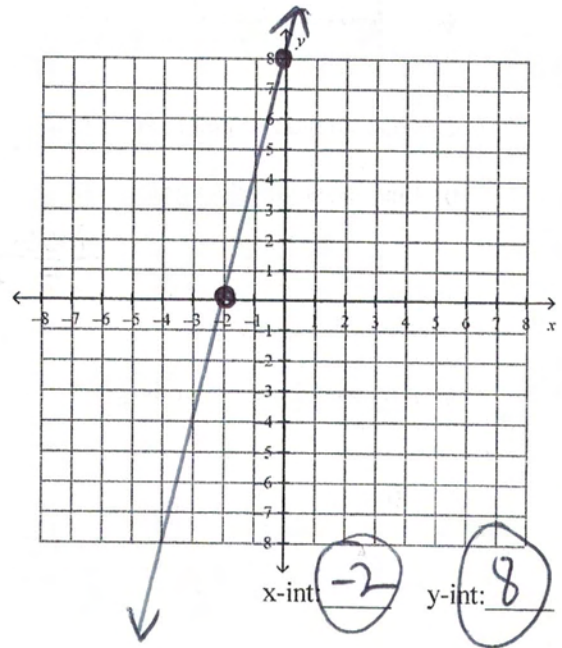
23. OLD  $y - 1 = -\frac{1}{2}(x + 5); (-5, 1)$  → new  $y = 2x + b$   
 $1 = 2(-5) + b$   
 $1 = -10 + b$   
 $\begin{array}{r} +10 \\ \hline 11 = b \end{array}$

$y = 2x + 11$   
 or  $y - 1 = 2(x + 5)$

Graph using intercepts. State the intercepts.

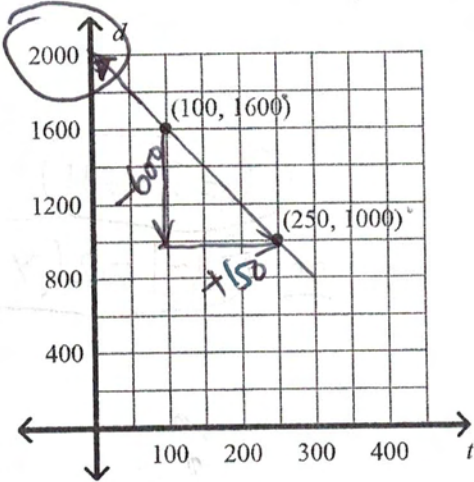
24.  $8x - 2y = -16$

<p><u>X-int</u>                  set <math>y = 0</math>  <math>8x - 2(0) = -16</math>  <math>8x = \frac{-16}{8}</math>  <math>x = -2</math></p>	<p><u>y-int</u>                  set <math>x = 0</math>  <math>8(0) - 2y = -16</math>  <math>-\frac{2y}{-2} = \frac{-16}{-2}</math>  <math>y = 8</math></p>
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Essay

25. Eliza races for her crew team. The graph shows the distance  $d$  in meters of Eliza's watercraft from the finish line and time  $t$  in seconds since the start of the race.



- a. What do the two points in the graph represent?

1600m in 100 secs } from the  
1000m in 250 secs } finish line

- b. Find the slope of the graph. Then explain the meaning of the slope.

$$\frac{1000 - 1600}{250 - 100}$$

Slope:  $\frac{-600}{150}$

Meaning of slope:

$\frac{-4}{1}$

4 meters  
second

- c. Find the y-intercept of the graph. Then explain the meaning of the y-intercept.

y-intercept:  $2000\text{ m}$

Meaning of y-intercept:

Race is  
2000 meters