

Chapter 4 Test, Form 2C

$y = mx + b$ SCORE _____

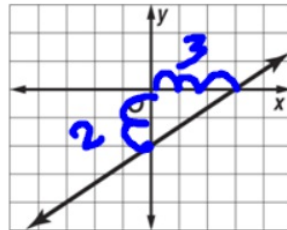
1. Write a linear equation in slope-intercept form to model the situation:
A telephone company charges \$28.75 per month plus \$0.10 a minute for long-distance calls.

1. $y = .10x + 28.75$

2. skip

2. _____

3. Write the slope-intercept form of an equation for the line graphed at the right.

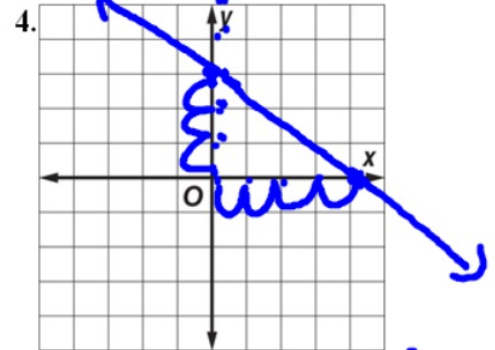


3. $y = \frac{2}{3}x - 2$

4. Graph the line with a y-intercept of 3 and slope $-\frac{3}{4}$.

$\frac{3}{-4}$

$-\frac{3}{4}$



5. Write an equation in slope-intercept form for the line that passes through

5. Write an equation in slope intercept form for the line that passes through

$(-1, -2)$ and $(3, 4)$.

x y

$$m = \frac{4 - (-2)}{3 - (-1)} = \frac{6}{4} = \frac{3}{2} = m$$

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

6. skip

7. Write an equation in point-slope form for the line that has slope $\frac{1}{3}$ and passes through $(-2, 8)$.

6. _____

7. _____

8. Write the standard form of the equation $y + 4 = -\frac{12}{7}(x - 1)$.

$$y = mx + b$$

$$\textcircled{5} \quad -2 = \frac{3}{2}(-1) + b$$

$$-2 = -\frac{3}{2} + b$$

$$-2 + \frac{3}{2} = -\frac{4}{2} + \frac{3}{2}$$

$$-\frac{2}{1} + \frac{3}{2} = \frac{-4}{2} + \frac{3}{2} = -\frac{1}{2}$$

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

12. _____



$$y - y_1 = m(x - x_1) \quad \leftarrow m$$

7. Write an equation in point-slope form for the line that has slope $\frac{1}{3}$ and passes through $(-2, 8)$.

$$x_1, y_1 \quad y - 8 = \frac{1}{3}(x - (-2))$$

6. _____

$$y - 8 = \frac{1}{3}(x + 2)$$

8. Write the standard form of the equation $y + 4 = -\frac{12}{7}(x - 1)$.

$$Ax + By = C \quad \Rightarrow (y + 4) = \left[-\frac{12}{7}(x - 1) \right]$$

8

$$7y + 28 = -12(x - 1)$$

$$7y + 28 = -12x + 12$$

$$\begin{array}{r}
 + 12x \\
 \hline
 7y + 28 \\
 - 12x \\
 \hline
 12x + 7y = -16
 \end{array}$$

10. Write the slope-intercept form of the equation of the line parallel to the graph of $2x + y = 5$ that passes through $(0, 1)$.

$-2x - 2x$ $\leftarrow b$

11. Write the slope-intercept form of the equation of the line perpendicular to the graph of $y = -\frac{3}{2}x - 7$ that passes through $(3, -2)$.

$x y$ $m = \frac{2}{3}$

12. A scatter plot of data showing the percentage of total Internet users who visited an online store on a given day in December includes the points $(2008, 2.0)$ and $(2010, 4.5)$. Write the slope-intercept form of an equation for the line of fit.

⑩ $y = -2x + 5$ $m = -2$
(parallel)

⑪ $y = mx + b$
 $-2 = \frac{2}{3}(3) + b$
 $-2 = 2 + b$
 $-2 - 2 = b$
 $-4 = b$
 $b = -4$

9. _____

10. $y = -2x + 1$

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

12. _____

NAME _____ DATE _____

$$y = mx + b$$

$$m = \frac{5}{4}$$

$$b = -2508$$

12. A scatter plot of data showing the percentage of total Internet users who visited an online store on a given day in December includes the points (2008, 2.0) and (2010, 4.5). Write the slope-intercept form of an equation for the line of fit.

11. _____

$$\frac{4.5 - 2.0}{2010 - 2008} = \frac{2.5}{2} = \frac{25}{20}$$

$$y = \frac{5}{4}x - 2508$$

$$\frac{5}{4} = m$$

$$y = mx + b$$

$$2 = \left(\frac{5}{4}\right)(2008) + b$$

$$-2510$$

$$2 = 2510 + b$$

$$\rightarrow b = -2508$$

NAME _____ DATE _____ PERIOD _____

$$-2510$$

Chapter 4 Test, Form 2C (continued)

For Questions 13-15, use the data in the table.

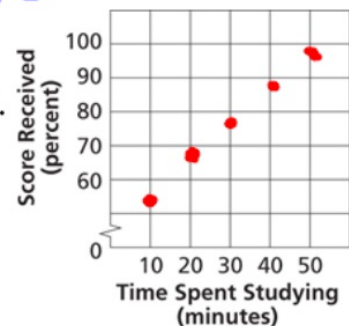
X	Time Spent Studying (min)	10	20	30	40	50
Y	Score Received (percent)	53	67	78	87	95

Handwritten calculations:

$$87 = \frac{42}{40}(40) + b$$

$$95 - 53 = \frac{42}{40} \cdot 13$$

$$50 - 10 = 40$$



13. Make a scatter plot relating time spent studying to the score received.

14. Write the slope-intercept form of the equation for a line of fit for the data.

~~Use your equation to predict a student's score if the student spent 35 minutes studying.~~

15. skip

Handwritten calculations for slope and intercept:

$$\frac{42}{40}$$

$$87 = 42 + b$$

$$\begin{array}{r} -42 \quad -42 \\ \hline 45 = b \end{array}$$

Handwritten equation for question 14:

$$y = \frac{42}{40}x + 45$$

14. _____
 15. _____

For Questions 16 and 17 use the data in the table showing the number of

x
y

Decade	1940s	1950s	1970s	1990s	2000s
Seats	23	30	43	52	53

Source: Office of the Clerk, U.S. House of Representatives

$$m = \frac{30 - 23}{1950 - 1940} = \frac{7}{10}$$

16. Find an equation for the median-fit line.

17. Predict the number of seats apportioned to California in the 1930s.

18. skip

19. If $f(x) = \frac{5 - 4x}{15}$, find $f^{-1}(x)$.

$$y = mx + b$$
$$30 = \left(\frac{7}{10}\right)(1950) + b$$
$$16. \quad y = \frac{7}{10}x - 1335$$

$$30 = 1365 + b$$

17. 16 seats

$$b = -1335$$

18.

(17)

$$x = 1930$$
$$y = \frac{7}{10}(1930) - 1335$$
$$y = 16$$

20. Write the inverse of $6x + 8y = 13$ in $f^{-1}(x)$ notation.

19. _____

18. skip

19. If $f(x) = \frac{5-4x}{15}$, find $f^{-1}(x)$.

$$y = \frac{5-4x}{15}$$

$$15(x) = \left(\frac{5-4y}{15} \right) 15$$
$$15x = \frac{5-4y}{-5} \quad \left. \begin{array}{l} 15x = 5-4y \\ -5 \quad -5 \end{array} \right\} \rightarrow \frac{15x-5}{-4} = \frac{-4y}{-4}$$

19. $f^{-1}(x) = \frac{15x-5}{-4}$

20. Write the inverse of $6x + 8y = 13$ in $f^{-1}(x)$ notation.

18. :

19.

(20)

$$6y + 8x = 13$$
$$\begin{array}{r} 6y + 8x = 13 \\ -8x \quad -8x \\ \hline 6y = 13 - 8x \\ \hline \frac{6y}{6} = \frac{13-8x}{6} \end{array}$$

20. Write the inverse of $6x + 8y = 13$ in $f^{-1}(x)$ notation.

$$f^{-1}(x) = \frac{13-8x}{6}$$

(20)

