Chapter 4 Practice Test

SCORE _____

Write the letter for the correct answer in the blank at the right of each question.

For Questions 1-5, find the equation in slope-intercept form that describes each line.

1. a line with slope –2 and y-intercept 4

1. $y = -2x + 4$

$y = mx + b \quad b = 4$
$y = 0x + b \quad y = 0x + 4$
$4 = (0)(2) + b$

2. a line through (2, 4) with slope 0

2. $y = 4$

3. a line through (4, 2) with slope $\frac{1}{2}$

$2 = \frac{1}{2}(4) + b$
$2 = 2 + b \quad b = 0$

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

$y = mx + b$

4. a line through (–1, 1) and (2, 3)

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

4. $y = \frac{2}{3}x + \frac{5}{3}$

5. The line graphed at the right.

A $y = \frac{2}{3}x - 1$ **C** $y = \frac{2}{3}x + \frac{3}{2}$

B $y = \frac{3}{2}x - 1$ **D** $y = \frac{3}{2}x + \frac{3}{2}$

(3, 1)
(0, –1)

5. A
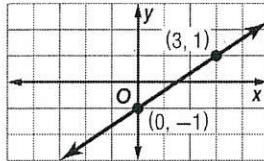
6. What is the equation of the line through (1, 4) with an undefined slope?

vertical line!
(1,4)

6. $x = 4$
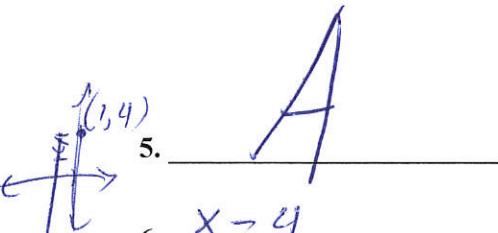
7. What is the standard form of $y - 8 = 2(x + 3)$?

A $2x + y = 14$ **B** $y = 2x + 14$ **C** $2x - y = -14$ **D** $y - 2x = 11$

$y - 8 = 2x + 6 \qquad -14 = 2x - y$

8. If line q has a slope of 5, what is the slope of any line perpendicular to q?

7. C

9. 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.

$\frac{4.5 - 2.0}{2010 - 2008} = \frac{2.5 \times 2}{2 \times 2} = \frac{5}{4} = m \quad y = mx + b \quad 2 = \frac{5}{4}(2008) + b$

8. $-\frac{1}{5}$

10. Using the equation found in problem 9, estimate the percentage of total Internet users who visited an online store in 2016.

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

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

10. $12 \ percent$
(see other page)

(10) $y = \frac{5}{4}x - 2508$
$y = \frac{5}{4}(2016) - 2508$
$y = 2520 - 2508$
$y = 12$

(9) cont.
$2 = \frac{5}{2}(1004) + b$
$2 = 2510 + b$
$-2510 \qquad -2510$
$-2508 = b$

11. $y = -2x + 1$

Chapter 4 Practice Test *(continued)*

12. 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 $(3, -2)$. *my (see other page)*

13. Find the inverse of $\{(2, -2), (3, -2), (5, 7), (4, 8)\}$.

For Questions 14 and 15, use the scatter plot shown.

14. List the order pairs of the values shown.
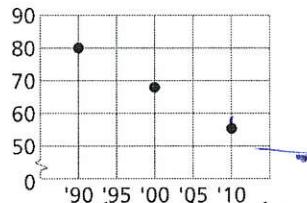
15. Based on the data in the scatter plot, what would you expect the y-value to be for $x = 2020$?

A greater than 80   **C** between 65 and 50
B between 80 and 65   **D** less than 50

16. 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. *oops...*

17 - 18. The table below shows Mia's bowling score each week she participated in a bowling league.

Week	1	2	3	4	5	6
Score	122	131	130	133	145	139

both increasing

17. What type of correlation, if any?

$\dfrac{139 - 122}{6 - 1} = \dfrac{17}{5}$

$y = mx + b$

$122 = \frac{17}{5}(1) + b$

$122 = 3.4 + b$

$-3.4 \quad -3.4$

$\boxed{118.6 = b}$

18. Write an equation that will best fit of the data shown.

19. If $f(x) = 6x + 3$, find $f^{-1}(x)$.

$y = 6x + 3 \Rightarrow y = \dfrac{x-3}{6}$
$x = 6y + 3$
$\dfrac{x-3}{6} = 6y$

20. If $f(x) = 4(3x - 5)$, find $f^{-1}(x)$.

$y = 12x - 20 \Rightarrow \dfrac{x+20}{12} = 12y$
$x = 12y - 20 \quad \dfrac{}{12} \quad \dfrac{}{12}$

Bonus Find the value of r in $(4, r), (r, 2)$ so that the slope of the line containing them is $-\frac{5}{3}$.

Answers:

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

13. $\{(-2, 2), (-2, 3), (7, 5), (8, 4)\}$

14. $(90, 80), (00, 68), (10, 55)$

15. D

16. $y = \frac{5}{4}x - \frac{5}{8}$

17. Positive *(may. answer will vary.)*

18. $y = 3.4x + 118.6$

19. $f^{-1}(x) = \dfrac{x-3}{6}$ *(or $\frac{1}{6}x - \frac{1}{2}$)*

20. $f^{-1}(x) = \dfrac{x+20}{12}$

B: ?

(11)

$2x + y = 5$

$-2x \qquad -2x$

$y = -2x + 5$

$(0, 1)$

y-int $+1$

$b = 1$

b

$y = mx + b$

$y = -2x + 1$

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(12) $y = -\dfrac{3}{2}x - 7$

$(3, -2)$

perpendicular →

$\boxed{M = \dfrac{2}{3}}$

$y = mx + b$

$-2 = \left(\dfrac{2}{3}\right)(3) + b$

$-2 = 2 + b$

$\dfrac{-2 \quad -2}{}$

$\boxed{b = -4}$

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