

EOC parallel and perpendicular review

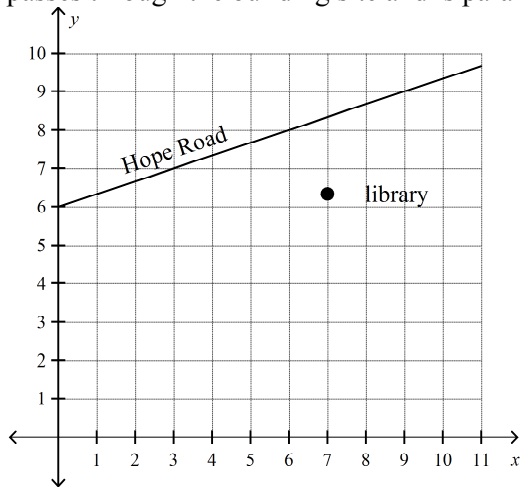
Multiple Choice

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

- _____ 1. A line passes through $(1, -5)$ and $(-3, 7)$.
Write the equation in slope-intercept form.
- | | |
|-------------------------------------|--------------------------------------|
| a. $y = 3x + 8$ | c. $y = \frac{1}{3}x + \frac{16}{3}$ |
| b. $y = \frac{1}{3}x + \frac{8}{3}$ | d. $y = -3x - 2$ |

Are the graphs of the lines in the pair parallel? Explain.

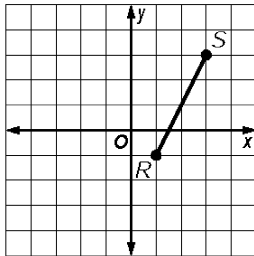
- _____ 2. $y = \frac{1}{6}x + 8$
 $-2x + 12y = -11$
- Yes, since the slope are the same and the y -intercepts are the same.
 - No, since the y -intercepts are different.
 - Yes, since the slope are the same and the y -intercepts are different.
 - No, since the slopes are different.
- _____ 3. The map shows Hope Road and the construction site for the new library. Find the equation of a “street” that passes through the building site and is parallel to Hope Road.



- | | |
|---------------------------|----------------------------|
| a. $y = 3x + 4$ | c. $y = -\frac{1}{3}x + 4$ |
| b. $y = \frac{1}{3}x - 4$ | d. $y = \frac{1}{3}x + 4$ |

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

- _____ 4. $4x - 12y = 2$; $(10, -1)$
 a. $y = 3x + 29$ c. $y = -3x + 29$
 b. $y = -\frac{1}{3}x + 29$ d. $y = -\frac{1}{3}x + 7$
- _____ 5. The equation of the graph of line n is $3x - y = 4$. Which could be the equation of a line m that is parallel to line n ?
 a. $y = 3x - 1.6$ c. $y = \frac{1}{3}x - 4$
 b. $y = -3x - 4$ d. $y = \frac{1}{3}x + 4$
- _____ 6. What is the slope of a line perpendicular to the line that passes through $(-5, 4)$ and $(0, 2)$?
 a. $-\frac{5}{2}$ c. $\frac{2}{5}$
 b. $-\frac{2}{5}$ d. $\frac{5}{2}$
- _____ 7. Line a is parallel to line b and passes through $(-3, 2)$. If the equation of the graph of line b is $y = 3x + 2$, which is an equation of line a ?
 a. $y = -3x - 7$ c. $y = 3x + 7$
 b. $y = -\frac{1}{3}x + 1$ d. $y = 3x + 11$
- _____ 8. Which is an equation for the line that passes through $(1, 3)$ and is parallel to \overline{RS} ?



- a. $y = 2x + 1$ c. $y = 2x + 3$
 b. $y = 2x + 2$ d. $y = -\frac{1}{2}x + \frac{5}{2}$
- _____ 9. A line segment has endpoints $J(2, 4)$ and $L(6, 8)$. The point K is the midpoint of JL . What is an equation of a line perpendicular to JL and passing through K ?
 a. $y = -x + 10$ c. $y = x + 2$
 b. $y = -x - 10$ d. $y = x - 2$
- _____ 10. Is the line through points $P(0, 5)$ and $Q(-1, 8)$ parallel to the line through points $R(3, 3)$ and $S(5, -1)$? Explain.
 a. No, the lines have unequal slopes.
 b. Yes; the lines are both vertical.
 c. Yes; the lines have equal slopes.
 d. No, one line has slope, the other has no slope.

- _____ 11. Which two lines are parallel?
- I. $5y = -3x - 5$
 - II. $5y = -1 - 3x$
 - III. $3y - 2x = -1$
- a. I and II
 - b. I and III
 - c. II and III
 - d. No two of the lines are parallel.
- _____ 12. Is the line through points $P(0, -9)$ and $Q(2, -8)$ perpendicular to the line through points $R(1, 4)$ and $S(3, 3)$? Explain.
- a. Yes; their slopes are equal.
 - b. Yes; their slopes have product -1
 - c. No, their slopes are not reciprocals.
 - d. Yes; their slopes have product -1
- _____ 13. Plans for a bridge are drawn on a coordinate grid. One girder of the bridge lies on the line $y = 3x - 3$. A perpendicular brace passes through the point $(-7, 9)$. Write an equation of the line that contains the brace.
- a. $y - 7 = \frac{1}{3}(x + 9)$
 - b. $y - 9 = 3(x + 7)$
 - c. $x - 9 = 3(y + 7)$
 - d. $y - 9 = -\frac{1}{3}(x + 7)$
- _____ 14. Are the lines $y = -x - 4$ and $5x + 5y = 20$ perpendicular? Explain.
- a. Yes; their slopes are equal.
 - b. Yes; their slopes have product -1 .
 - c. No; their slopes are not equal
 - d. No; their slopes are not opposite reciprocals.
- _____ 15. Give the slope-intercept form of the equation of the line that is perpendicular to $7x + 3y = 18$ and contains $P(6, 8)$.
- a. $y - 6 = \frac{3}{7}(x - 8)$
 - b. $y = \frac{3}{7}x + \frac{18}{7}$
 - c. $y = \frac{3}{7}x + \frac{38}{7}$
 - d. $y - 8 = \frac{3}{7}(x - 6)$
- _____ 16. A line segment has endpoints $X(10, 8)$ and $Y(14, 4)$. The point W is the midpoint of XY . Write an equation of a line perpendicular to XY and passing through the point W .
- a. $y = -x + 6$
 - b. $y = x + 6$
 - c. $y = x - 6$
 - d. $y = -x - 6$

Other

17. Line p contains points $A(-1, 4)$ and $B(3, -5)$. Line q is parallel to line p . Line r is perpendicular to line q . What is the slope of line r ? Explain.