PAP Geometry - HW 1.5 - Parallel and Perpendicular Lines on the Coordinate Plane

Vocabulary

Complete the sentence.

1. The point-slope form of the equation of the line that passes through (x_1, y_1) and has slope *m is*

   _____.

   Determine whether each pair of lines are parallel, perpendicular, or neither. Explain your reasoning.
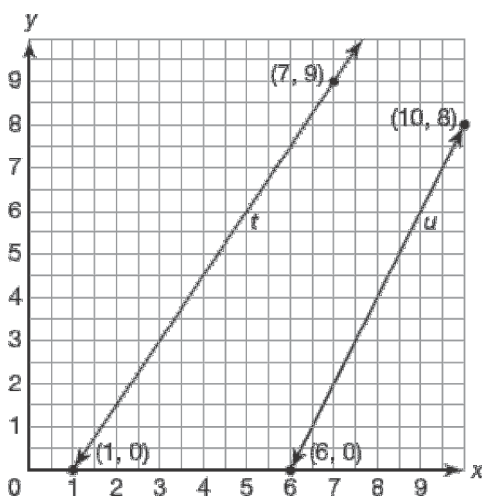
2. line *p*: $y - x = 4$

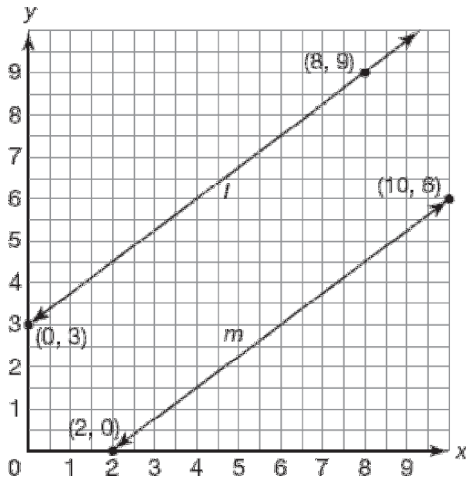   line *q*: $2x + y = 8$

3. line *r*: $2y + x = 6$

   line *s*: $3x + 6y = 12$

   Determine whether the lines shown on each coordinate plane are parallel, perpendicular, or neither. Explain your reasoning.

4.

5.

Determine an equation for each parallel line described. Write your answer in both point-slope form and slope-intercept form.

6. What is the equation of a line parallel to $y = -5x + 3$ that passes through (3, 1)?

Determine an equation for each perpendicular line described. Write your answer in both point-slope form and slope-intercept form.

7. What is the equation of a line perpendicular to $y = -\dfrac{2}{5}x - 1$ that passes through (2,–8)?

Determine the equation of a vertical line that passes through each given point.

8. (3, 15)

9. $(-11, -8)$

Determine the equation of a horizontal line that passes through each given point.

10. $(-6, 5)$

11. $(-8, -3)$

Calculate the distance from each given point to the given line.

12. Point: $(-1, 3)$; Line: $f(x) = -\dfrac{1}{2}x - 4$

   Write the equation for the line perpendicular to the given line that goes through the given point.

13. Point: $(-1, -2)$; Line: $f(x) = -4x + 11$

   Write the equation for the line perpendicular to the given line that goes through the given point.

Find the unknown coordinate so the line through the points has the given slope.

14. $(x, 7)$, $(4, -3)$; slope = -1

15. $(5, y)$, $(2, 2)$; slope perpendicular to $m = 3$