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6-3 Write Equations of Parallel and Perpendicular Lines Worksheet

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

1) (5, -1), $y = -\frac{3}{5}x - 3$

2) (1, 7), -6x + y = -1

3) (-2, 5), 2y = 4x – 6

4) (-10, 0), -y + 3x = 16

5) Determine which lines, if any, are parallel or perpendicular.

Line a: $y = \frac{3}{5}x + 1$

Line b: 5y = 3x – 2

Line c: 10x – 6y = -4

6) Determine which lines, if any, are parallel or perpendicular.

Line a: 4x – 3y = 2

Line b: 3x + 4y = -1

Line c: 4y – 3x = 20

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Directions: Write an equation of the line that passes through the given point and is perpendicular to the given line.

7) (-9, 2), y = 3x -12	8) (7, 10), y = .5x – 9	9) (-4, -1), $y = \frac{4}{3}x + 6$

10. Find the Equation of a line parallel to y = -3 passing through the coordinate (2,6).

11. Find the Equation of a line perpendicular to y = -3 passing through the coordinate (2,6).

12. Find the Equation of a line parallel to x = 4 passing through the coordinate (-2,3).

13. Find the Equation of a line perpendicular to x = 4 passing through the coordinate (-2,3).

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6-3 Write Equations of Parallel and Perpendicular Lines Worksheet

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

1) (5, -1), $y = -\frac{3}{5}x - 3$

$m = \frac{-3}{5}$

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

$-1 = -3 + b$

$2 = b$

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

2) (1, 7), $-6x + y = -1$

$y = 6x - 1$ $\quad m = 6$

$7 = 6(1) + b$

$7 = 6 + b$

$1 = b$

$y = 6x + 1$

3) (-2, 5), $2y = 4x - 6$

$\frac{2y}{2} = \frac{4x}{2} - \frac{6}{2}$

$y = 2x - 3$ $\quad m = 2$

$5 = 2(-2) + b$

$5 = -4 + b$

$9 = b$

$y = 2x + 9$

4) (-10, 0), $-y + 3x = 16$

$-y = -3x + 16$ $\quad m = 3$

$y = 3x - 16$

$0 = 3(-10) + b$

$0 = -30 + b$

$b = 30$

$y = 3x + 30$

5) Determine which lines, if any, are parallel or perpendicular.

Line a: $y = \frac{3}{5}x + 1$

Line b: $5y = 3x - 2$

Line c: $10x - 6y = -4$

B: $5y = 3x - 2$

$y = \frac{3}{5}x - \frac{2}{5}$

C: $10x - 6y = -4$

$\frac{-6y}{-6} = \frac{-10x}{-6} - \frac{4}{-6}$

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

A + B

Parallel

6) Determine which lines, if any, are parallel or perpendicular.

Line a: $4x - 3y = 2$

Line b: $3x + 4y = -1$

Line c: $4y - 3x = 20$

A: $4x - 3y = 2$

$-3y = -4x + 2$

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

B: $3x + 4y = -1$

$4y = -3x - 1$

$y = \frac{-3}{4}x - \frac{1}{4}$

C: $4y - 3x = 20$

$4y = 3x + 20$

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

A + B are Perpendicular

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Directions: Write an equation of the line that passes through the given point and is perpendicular to the given line.

7) (-9, 2), y = 3x -12

$m = -\frac{1}{3}$

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

$2 = 3 + b$

$-1 = b$

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

8) (7, 10), y = .5x – 9

$y = \frac{1}{2}x - 9$ $m = -2$

$10 = -2(7) + b$

$10 = -14 + b$

$24 = b$

$y = -2x + 24$

9) (-4, -1), $y = \frac{4}{3}x + 6$ $m = \frac{-3}{4}$

$-1 = \frac{-3}{4}(-4) + b$

$-1 = 3 + b$

$-4 = b$

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

10. Find the Equation of a line parallel to y = -3 passing through the coordinate (2,6).

$y = 6$

11. Find the Equation of a line perpendicular to y = -3 passing through the coordinate (2,6).

$x = 2$

12. Find the Equation of a line parallel to x = 4 passing through the coordinate (-2,3).

$x = -2$

13. Find the Equation of a line perpendicular to x = 4 passing through the coordinate (-2,3).

$y = 3$