

Are the lines parallel? Explain.

1)  $y = 5x + 1$   
 $y = 5x$

2)  $y = \frac{4}{5}x + 11$   
 $y = \frac{4}{5}x - 5$

3)  $y - 2x = 3$   
 $y + 2x = 5$

Write an equation for a line that contains point P and is parallel to the given line.

4)  $y = 5x + 1$ ;  $P(1, 3)$

5)  $-x + 3y = 6$ ;  $P(-3, 5)$

6)  $y = \frac{1}{2}x$ ;  $P(4, 0)$

7)  $5x + 3y = 9$ ;  $P(7, -6)$

Are the lines perpendicular? Explain.

8)  $y = \frac{1}{5}x + 7$   
 $y = 5x - 1$

9)  $y = -x - 12$   
 $y = x + 3$

10)  $2x + 3y = 18$   
 $6x - 4y = 16$

Write an equation for a line that contains point P and is perpendicular to the given line.

11)  $y = \frac{1}{3}x - 2$ ;  $P(4, 2)$

12)  $y + 3x = -9$ ;  $P(5, 5)$

13)  $2y + 3x = 10$ ;  $P(0, 0)$

14)  $4y - 5x = 8$ ;  $P(-1, -5)$

*Answer Key*

1) Yes – Slopes are the same, y-intercepts are different

2) Yes – Slopes are the same, y-intercepts are different

3) No – Slopes are different

4)  $y - 3 = 5(x - 1)$

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

6)  $y = \frac{1}{2}(x - 4)$

7)  $y + 6 = -\frac{5}{3}(x - 7)$

8) No – the product of the slopes  $\neq -1$ .

9) Yes – the product of the slopes = -1.

10) Yes – the product of the slopes = -1.  $(-2/3)(3/2) = -1$

11)  $y - 2 = -3(x - 4)$

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

13)  $y = \frac{2}{3}x$

14)  $y + 5 = -\frac{4}{5}(x + 1)$