

## 2.5 Practice - Parallel and Perpendicular Lines

Find the slope of a line parallel to each given line.

1)  $y = 2x + 4$

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

3)  $y = 4x - 5$

4)  $y = -\frac{10}{3}x - 5$

5)  $x - y = 4$

6)  $6x - 5y = 20$

7)  $7x + y = -2$

8)  $3x + 4y = -8$

Find the slope of a line perpendicular to each given line.

9)  $x = 3$

10)  $y = -\frac{1}{2}x - 1$

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

12)  $y = \frac{4}{5}x$

13)  $x - 3y = -6$

14)  $3x - y = -3$

15)  $x + 2y = 8$

16)  $8x - 3y = -9$

Write the point-slope form of the equation of the line described.

17) through:  $(2, 5)$ , parallel to  $x = 0$

18) through:  $(5, 2)$ , parallel to  $y = \frac{7}{5}x + 4$

19) through:  $(3, 4)$ , parallel to  $y = \frac{9}{2}x - 5$

20) through:  $(1, -1)$ , parallel to  $y = -\frac{3}{4}x + 3$

21) through:  $(2, 3)$ , parallel to  $y = \frac{7}{5}x + 4$

22) through:  $(-1, 3)$ , parallel to  $y = -3x - 1$

23) through:  $(4, 2)$ , parallel to  $x = 0$

24) through:  $(1, 4)$ , parallel to  $y = \frac{7}{5}x + 2$

25) through:  $(1, -5)$ , perpendicular to  $-x + y = 1$

26) through:  $(1, -2)$ , perpendicular to  $-x + 2y = 2$

27) through:  $(5, 2)$ , perpendicular to  $5x + y = -3$

- 28) through: (1, 3), perpendicular to  $-x + y = 1$
- 29) through: (4, 2), perpendicular to  $-4x + y = 0$
- 30) through: (-3, -5), perpendicular to  $3x + 7y = 0$
- 31) through: (2, -2) perpendicular to  $3y - x = 0$
- 32) through: (-2, 5). perpendicular to  $y - 2x = 0$

**Write the slope-intercept form of the equation of the line described.**

- 33) through: (4, -3), parallel to  $y = -2x$
- 34) through: (-5, 2), parallel to  $y = \frac{3}{5}x$
- 35) through: (-3, 1), parallel to  $y = -\frac{4}{3}x - 1$
- 36) through: (-4, 0), parallel to  $y = -\frac{5}{4}x + 4$
- 37) through: (-4, -1), parallel to  $y = -\frac{1}{2}x + 1$
- 38) through: (2, 3), parallel to  $y = \frac{5}{2}x - 1$
- 39) through: (-2, -1), parallel to  $y = -\frac{1}{2}x - 2$
- 40) through: (-5, -4), parallel to  $y = \frac{3}{5}x - 2$
- 41) through: (4, 3), perpendicular to  $x + y = -1$
- 42) through: (-3, -5), perpendicular to  $x + 2y = -4$
- 43) through: (5, 2), perpendicular to  $x = 0$
- 44) through: (5, -1), perpendicular to  $-5x + 2y = 10$
- 45) through: (-2, 5), perpendicular to  $-x + y = -2$
- 46) through: (2, -3), perpendicular to  $-2x + 5y = -10$
- 47) through: (4, -3), perpendicular to  $-x + 2y = -6$
- 48) through: (-4, 1), perpendicular to  $4x + 3y = -9$



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## Answers - Parallel and Perpendicular Lines

- |                    |                                   |                             |
|--------------------|-----------------------------------|-----------------------------|
| 1) 2               | 18) $y - 2 = \frac{7}{5}(x - 5)$  | 34) $y = \frac{3}{5}x + 5$  |
| 2) $-\frac{2}{3}$  | 19) $y - 4 = \frac{9}{2}(x - 3)$  | 35) $y = -\frac{4}{3}x - 3$ |
| 3) 4               | 20) $y + 1 = -\frac{3}{4}(x - 1)$ | 36) $y = -\frac{5}{4}x - 5$ |
| 4) $-\frac{10}{3}$ | 21) $y - 3 = \frac{7}{5}(x - 2)$  | 37) $y = -\frac{1}{2}x - 3$ |
| 5) 1               | 22) $y - 3 = -3(x + 1)$           | 38) $y = \frac{5}{2}x - 2$  |
| 6) $\frac{6}{5}$   | 23) $x = 4$                       | 39) $y = -\frac{1}{2}x - 2$ |
| 7) $-7$            | 24) $y - 4 = \frac{7}{5}(x - 1)$  | 40) $y = \frac{3}{5}x - 1$  |
| 8) $-\frac{3}{4}$  | 25) $y + 5 = -(x - 1)$            | 41) $y = x - 1$             |
| 9) 0               | 26) $y + 2 = -2(x - 1)$           | 42) $y = 2x + 1$            |
| 10) 2              | 27) $y - 2 = \frac{1}{5}(x - 5)$  | 43) $y = 2$                 |
| 11) 3              | 28) $y - 3 = -(x - 1)$            | 44) $y = -\frac{2}{5}x + 1$ |
| 12) $-\frac{5}{4}$ | 29) $y - 2 = -\frac{1}{4}(x - 4)$ | 45) $y = -x + 3$            |
| 13) $-3$           | 30) $y + 5 = \frac{7}{3}(x + 3)$  | 46) $y = -\frac{5}{2}x + 2$ |
| 14) $-\frac{1}{3}$ | 31) $y + 2 = -3(x - 2)$           | 47) $y = -2x + 5$           |
| 15) 2              | 32) $y - 5 = -\frac{1}{2}(x + 2)$ | 48) $y = \frac{3}{4}x + 4$  |
| 16) $-\frac{3}{8}$ | 33) $y = -2x + 5$                 |                             |
| 17) $x = 2$        |                                   |                             |



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