

$$y = mx + b$$

↑
slope

Parallel lines Worksheet

Determine whether the graphs of the equations are parallel lines.

1. $x + 4 = y$ and $y - x = -3$

$$y = x + 4 \quad \begin{array}{c} +x \\ +x \end{array}$$

$$y = x - 3$$

$m = 1$ $m = 1$

(yes)

2. $3x - 4 = y$ and $y - 3x = 8$

$$m = 3 \quad \begin{array}{c} +3x \\ +3x \end{array}$$

$$y = 3x + 8$$

$m = 3$

(yes)

3. $y + 3 = 6x$ and $-6x - y = 2$

$$y = 6x - 3 \quad \begin{array}{c} -3 \\ -1 \\ -1 \end{array}$$

$$y = -6x - 2$$

$m = 6$ $m = -6$

(not //)

4. $y = -4x + 2$ and $-5 = -2y + 8x$

$$m = -4 \quad \begin{array}{c} -8x \\ -8x \end{array}$$

$$-2y - 5 = -8x$$

$$-2y = -8x + 5$$

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

$m = 4$

(No)

5. $y = 2x + 7$ and $5y + 10x = 20$

$$m = 2 \quad 5y = -10x + 20$$

$$y = -2x + 4$$

$m = -2$

(No)

6. $y = -7x - 5$ and $2y = -7x - 10$

$$m = -7 \quad \begin{array}{c} -7x \\ -7x \end{array}$$

$$y = -\frac{7}{2}x - 5$$

$m = -\frac{7}{2}$

(No)

7. $3x - y = -9$ and $2y - 6x = -2$

$$\begin{array}{c} -3x \\ -3x \end{array}$$

$$-y = -3x - 9$$

$$y = 3x + 9$$

$m = 3$

$$2y = 6x - 2$$

$$y = 3x - 1$$

$m = 3$

(yes)

8. $y - 6 = -6x$ and $-2x + y = 5$

$$y = -6x + 6$$

$m = -6$

$$y = 2x + 5$$

$m = 2$

(No)

9. $-3x + y = 4$ and $3x - y = -6$

$$y = 3x + 4$$

$m = 3$

$$-y = -3x - 6$$

$$y = 3x + 6$$

$m = 3$

(yes)

10. $-4 = y + 2x$ and $6x + 3y = 4$

$$y = -2x - 4$$

$m = -2$

$$3y = -6x + 4$$

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

$m = -2$

(yes)

11. $8x - 4y = 16$ and $5y - 10x = 3$

$$-4y = -8x + 16$$

$$y = 2x - 4$$

$m = 2$

$$5y = 10x + 3$$

$$y = 2x + \dots$$

$m = 2$

(yes)

12. $-4x = 3y + 5$ and $8x + 6y = -1$

$$-4x - 5 = 3y$$

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

$m = -\frac{4}{3}$

$$\begin{array}{c} -8x \\ -8x \end{array}$$

$$6y = -8x - 1$$

$$y = -\frac{8}{6}x - \frac{1}{6}$$

$m = -\frac{4}{3}$

(yes)

Parallel Lines Worksheet

Write an equation for the line containing the given point and parallel to the given line. Graph both lines on another sheet.

13. (0,6): $y - 3x = 4$
 $y = 3x + 4$
 $m = 3$

$$y - 6 = 3(x - 0)$$

17. (-3, 2): $x - y = 5$
 $-y = -x + 5$
 $y = x - 5$
 $m = 1$

$$y - 2 = 1(x + 3)$$

14. (-2, 4): $y = 2x - 3$
 $m = 2$

$$y - 4 = 2(x + 2)$$

18. (-1, -1): $2y + 4x = 8$
 $2y = -4x + 8$
 $y = -2x + 4$
 $m = -2$

$$y + 1 = -2(x + 1)$$

15. (0, 2): $3y - x = 0$
 $3y = x$
 $y = \frac{1}{3}x$
 $m = \frac{1}{3}$

$$y - 2 = \frac{1}{3}(x - 0)$$

19. (0, 0): $2x - y = 6$
 $-y = -2x + 6$
 $y = 2x - 6$
 $m = 2$

$$y - 0 = 2(x - 0)$$

$$y = 2x$$

16. (1, 0): $2x + y = -4$
 $y = -2x - 4$
 $m = -2$

$$y - 0 = -2(x - 1)$$

20. (-4, 5): $3x - 2y = 6$
 $-2y = -3x + 6$
 $y = \frac{3}{2}x - 3$
 $m = \frac{3}{2}$

$$y - 5 = \frac{3}{2}(x + 4)$$