

Parallel Lines -

Two lines that do not intersect. Parallel lines have matching slopes. The symbol for parallel lines is \parallel . ex. $m=2$ and 2

Perpendicular Lines - Two lines that do intersect. Perpendicular lines have **opposite reciprocal** slopes (flopposite). The symbol for perpendicular lines is \perp .

ex. $m=7$ and $-\frac{1}{7}$

ex. $m=\frac{2}{3}$ and $-\frac{3}{2}$

Nov 2-1:24 PM

Are the following slopes parallel, perpendicular, or neither?

- $y = 4x - 8$ and $y = 4x - 2$ \parallel parallel
- $y = 3x + 2$ and $y = x - 4$ neither
- $y = \frac{2}{3}x - 3$ and $y = -\frac{3}{2}x + 4$ \perp perp.
- $y = \frac{4}{5}x$ and $y = \frac{4}{5}x$ neither (same line)
- $y = \frac{1}{3}x + 2$ and $y = -3x + 5$ \perp perp.
- $2x + 3y = 6$ and $4x + 6y = 24$ \parallel parallel
 $\frac{3y}{3} = \frac{-2x+6}{3}$ $\frac{6y}{6} = \frac{-4x+24}{6}$

$y = \frac{2}{3}x + 2$ Jan 4-8:39 AM $y = -\frac{4}{6}x + 4$
 $y = -\frac{2}{3}x + 4$

Are the following slopes parallel, perpendicular or neither?

- $y = 4x - 8$; $y = 3x - 8$ neither
- $y = \frac{4}{5}x + 2$; $y = \frac{4}{5}x - 2$ parallel
- $y = \frac{1}{3}x + 2$; $y = -3x + 5$
- $2x + 3y = 6$; $4x + 6y = 24$

Nov 2-1:39 PM

Write the slope-intercept form of an equation of the line that passes through the given point and is parallel to the graph of each equation.

1. $2x + y = 5$; (3,1)
 $-2x$ $-2x$
 $y = -2x + 5$
 $m = -2$
 par \rightarrow same
 $m = -2$
 $1 = -2(3) + b$
 $1 = -6 + b$
 $+6$ $+6$
 $7 = b$
 $y = mx + b$
 $y = -2x + 7$

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Parallel \rightarrow same

Write the slope-intercept form of an equation of the line that passes through the given point and is parallel to the graph of each equation.

2. $3x - y = 5$; (-1,-2)
 $-3x$ $-3x$
 $y = -3x + 5$
 -1
 $y = 3x - 5$
 $m = 3$
 $m = 3$
 $-2 = 3(-1) + b$
 $-2 = -3 + b$
 $+3$ $+3$
 $1 = b$
 $y = mx + b$
 $y = 3x + 1$

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Write the slope-intercept form of an equation of the line that passes through the given point and is parallel to the graph of each equation.

3. $y = \frac{1}{4}x - 2$; (1,3)
 $m = \frac{1}{4}$
 parallel \rightarrow same
 $3 = (\frac{1}{4})(1) + b$
 $3 = \frac{1}{4} + b$
 $-\frac{1}{4}$ $-\frac{1}{4}$
 $2\frac{3}{4} = b$
 $y = mx + b$
 $y = \frac{1}{4}x + 2\frac{3}{4}$
 $y = \frac{1}{4}x + \frac{11}{4}$

Nov 2-1:50 PM

parallel → same
Write the slope-intercept form of an equation of the line that passes through the given point and is **parallel** to the graph of each equation.

4. $6x - 2y = 3$; $(-1, -2)$
 $\frac{-2y}{-2} = \frac{-6x + 3}{-2}$
 $y = 3x - \frac{3}{2}$
 $m = 3$
 $-2 = 3(-1) + b$
 $-2 = -3 + b$
 $+3 \quad +3$
 $1 = b$
 $y = 3x + 1$

Nov 2-1:51 PM

FLOPPPOSITE!
Write the slope-intercept form of an equation of the line that passes through the given point and is **perpendicular** to the graph of each equation.

1. $x - 6y = 2$; $(2, 4)$ $m = -\frac{1}{6}$
 $\frac{-6y}{-6} = \frac{-x + 2}{-6}$
 $y = \frac{1}{6}x - \frac{1}{3}$
 $m = \frac{1}{6}$
 $4 = \frac{1}{6}(2) + b$
 $4 = \frac{2}{6} + b$
 $4 = \frac{1}{3} + b$
 $- \frac{1}{3} \quad - \frac{1}{3}$
 $\frac{11}{3} = b$
 $y = \frac{1}{6}x + \frac{11}{3}$

Nov 2-1:52 PM

FLOPPPOSITE!
Write the slope-intercept form of an equation of the line that passes through the given point and is **perpendicular** to the graph of each equation.

2. $5x + 4y = 8$; $(10, 5)$
 $\frac{4y}{4} = \frac{-5x + 8}{4}$
 $y = -\frac{5}{4}x + 2$
 $m = -\frac{5}{4}$
 $m = \frac{4}{5}$
 $y = mx + b$
 $5 = \frac{4}{5}(10) + b$
 $5 = 8 + b$
 $-3 = b$
 $y = \frac{4}{5}x - 3$

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FLOPPPOSITE!
Write the slope-intercept form of an equation of the line that passes through the given point and is **perpendicular** to the graph of each equation.

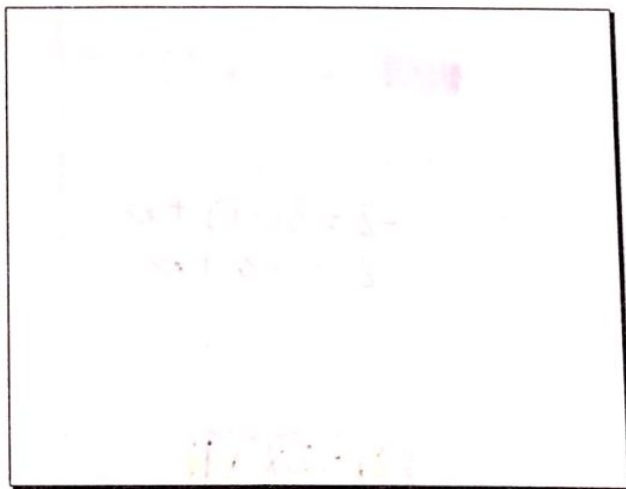
3. $y = 3x - 7$; $(2, 4)$
 $m = 3 \rightarrow m = -\frac{1}{3}$
 $4 = -\frac{1}{3}(\frac{2}{1}) + b$
 $4 = -\frac{2}{3} + b$
 $+\frac{2}{3} \quad +\frac{2}{3}$
 $4\frac{2}{3} = b \rightarrow \frac{14}{3} = b$
 $y = -\frac{1}{3}x + \frac{14}{3}$

Nov 2-1:54 PM

FLOPPPOSITE!
Write the slope-intercept form of an equation of the line that passes through the given point and is **perpendicular** to the graph of each equation.

4. $y = 5/2x - 12$; $(6, 3)$
 $m = \frac{5}{2}$
 $m = -\frac{2}{5}$
 $3 = (-\frac{2}{5})(\frac{6}{1}) + b$
 $3 = -\frac{12}{5} + b$
 $+\frac{12}{5} \quad +\frac{12}{5}$
 $3\frac{12}{5} = b \rightarrow \frac{27}{5} = b$
 $y = -\frac{2}{5}x + \frac{27}{5}$

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