

5-6 Parallel and Perpendicular Lines

Parallel lines have the same slope.

$y = 2x + 6$ and $y = 2x - 3$ are parallel lines.

$m = ?$

Are

To compare slopes, write equations in slope-intercept form.

Since slopes are the same, the lines are parallel.
and

Ex. 1. Write the slope-intercept form of an equation for the line through (4, -2) and parallel to

$$y = x - 7$$

m =

Through (4, -2)

Use point-slope form:

Change to slope-intercept form:

1

Perpendicular lines have slopes that are opposite reciprocals of each other.

$y = 2x + 6$ and $y = -\frac{3}{2}x - 4$ are perpendicular.

$m =$

$m =$

Are $y = -\frac{3}{4}x + 6$ and $y = \frac{2}{3}x + 3$ perpendicular?

Slope-intercept form:

$m =$

$m =$

4

Since slopes are opposite reciprocals, lines are perpendicular.

Ex. 2 p. 294

Ex. 3. Write the slope-intercept form of an equation through (4, -1) and perpendicular to $7x - 2y = 3$.

First, write equation in slope-intercept form.

$m =$

Opposite reciprocal slope is

Use point-slope to find equation of perpendicular line.

Ex. 4. Write the slope-intercept form of an equation perpendicular to $2y + 5x = 2$ that passes through $(0, 6)$.

Slope-intercept form:

Opposite reciprocal is:

Equation:

Assign. p. 296
13 - 45 odd