Lesson 7: Finding the Equation of a Line with Given Information

Warm-Up

Express the following in standard form:

$a)\ y = 2x + 3$ $b)\ y = \frac{5}{6}x - 3$

What are the x and y-intercepts for the above?

a) b)

Finding the Equations of Lines

Simplest: Given slope and y-intercept:

Determine the equation of a line with a slope of -5 that passes through the point (0, 2).

- use substitution for m and b
- remember that to write an equation, you need to know the slope and y-intercept

Case 1: Given slope and a point

Determine the equation of the line with a slope of $\frac{1}{3}$ that passes through the point (-9, 4).

- use substitution for m, y and x to find b
- rewrite the equation with the m and b replaced

Case 2: Given two points

Determine the equation of the line that passes through the points (6, -10) and (-2, 6).

- use slope formula to find slope between the two points
- use substitution for m, y and x to find b
- rewrite the equation with the m and b replaced

Case 3: Parallel line and a point

Determine the equation of the line that is parallel to $y = -5x + 2$ that passes through the point (2, -5).

- determine the slope of the parallel line
- use substitution for m, y and x to find b
- rewrite the equation with the m and b replaced

Case 4

Determine the equation of the line that is perpendicular to $y = 3x - 5$ that has the same y-intercept as $4x - 2y + 12 = 0$.

- determine the slope of the perpendicular line
- determine the coordinates of the point (if not given)
- use substitution for m, y and x to find b
- rewrite the equation with the m and b replaced

Homework: p. 133 #4, 7-10

Extra Practice? p.139-141 #8-10, 12, 14