

The Use of Point-Slope Formula

Part I)

Introduction of the different formulas:

1) 2-Point Form	$\frac{y - y_1}{x - x_1} = \frac{y_2 - y_1}{x_2 - x_1}$
2) Point-Slope Form	$y - y_1 = m(x - x_1)$
3) Y-Intercept Form	$y = mx + b$

m = slope
b = y-intercept

Part II)

Eg. 1) (When given two points): Find the equation of a line that goes through the points (4,2) and (-2,-1):

First, we find the slope:

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - 2}{-2 - 4} = 1/2$$

Then, we choose a set of points, let's say (4,2), and substitute the slope and the points into the point-slope form, as follow:

$$y - 2 = \frac{1}{2}(x - 4)$$

Eg.2) (When the slope and a point): Find the equation of a line that the slope is -1 and it passes through the point (3,1):

In this case, we simply substitute the given information into the formula, as follow:

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

Eg.3) (When the y-intercept and the slope): Find the equation of a line that the y-intercept is -1 and the slope is 2.

First, we find the coordinate for the y-intercept. We know that the