**7.3 Point-Slope Form**

Goals

* Writing the equation of a line from its slope and a point on the line
* Converting equations among various forms
* Writing the equation of a line from two points on the line
* Solving problems involving equations in point-slope form

Vocabulary

1. Slope-Point Form

Notes

The Slope-Point form formula is:

We will now derive how we got there:

Examples

1. A) Use slope=point form to write an equation of the line through ( -2, 5) with a slope of -3

B) Express the equation in slope-intercept form, y= mx + b

c) Graph the linear relation using technology

1. Use slope point form to write an equation of the line through ( 3, -4) and ( 5, 1)
   1. Sketch the graph of the line
   2. Rewrite the equation in general form Ax + By + C = 0
2. Suppose Spiderman climbs at a constant rate the 381 m tall Empire state building. We can split the building into six sections. Each section is approximately 63.5 meters. At 5:45 am, Spiderman started to climb. By 5:49 am, he was 20 m below the top of the first section.
   1. Write an equation that describes Spiderman’s distance, d, in m, below the top of the first section in terms of t minutes past 5:45.am. Express the equation in y= mx + b form
   2. How long did it take Spiderman to complete the first section?
   3. How long would it take Spiderman to climb the entire building?

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