Lesson 8.1- Point Slope Form + Slope intercept Form of a line

NOTE: To avoid taking up too many lines, the formulas are listed below the name of the formula.

NOTE: (SI) Is slope intercept form. (PS) is Point Slope Form.

Slope intercept form:

slope

y-intercept

Formula for how to find a slope:

Or change in y over change in x

Point Slope Form:

Standard Form: Where “A” is a positive integer and “B” and “C” are integers.

Integer: Are positive or negative whole numbers

The “point-slope” form of a line with slope that passes through the point is given by the formula .

When you are given the slope of a line and a point, or two points on a line, it is easier to find the equation of the line in point-slope form than in slope-intercept form or standard form.

Example 1 Write the equation of the line with slope 2 that passes through the point .

Note: Equations and formulas are written below the direction to avoid taking up too many lines.

Write Slope formula:

Substitute and

Simplify

The answer is:

Example 2

find the equation of the line with the given slope that passes through the given point. Write the equation of the line in point-slope form AND Slope intercept form.

a) and passes through

(PS)

(SI)

b) and passes through

(PS)

(SI)

You can also use the point-slope form to find the equation of a line that passes through two given points.

Example 3 Write the equation of the line that passes through the points and .

Note: Equations and formulas are written below the direction to avoid taking up too many lines.

Substitute and

Write the point-slope form

Substitute and

The answer is:

Example 4

Find the equation of the line that passes through the given points. Write our answer in point slope form AND slope intercept form

a) and

PS:

SI:

b) and

PS:

SI:

More Practice:

5) Write the equation of a line in slope intercept form that has the same slope as the line and the same y-intercept as

Slope:

Intercept: 4

6) Write the equation of the line in

Slope intercept form:

Point Slope Form:

Standard Form:

You try: Write the equation of the line in point slope form AND slope intercept form.

7) , passing through

PS:

SI:

8) passing through

(PS)

(SI)

9) Passing through and

(PS)

(SI)

10) Passing through and

(PS)

(SI)

11) Passing through and

(PS)

(SI)

12) Passing through and

(PS)

(SI)

Write each equation in slope intercept form:

13)

14)