

5.3 WRITING LINEAR EQUATIONS GIVEN TWO POINTS

In §5.1 we learned how to write equations when given the slope and the y – intercept.

Example: Refresh your memory...Write the equation of the line having slope 3 and y – intercept 4.

[**need help?** ... go back and read example 1 on page 273]

In §5.2 we learned how to write equations when given the slope and a point. We did this by plugging the slope and the x and y coordinates of the given point into $y = mx + b$ and solving for b .

Example: Refresh your memory...Write the equation of the line have slope 2 and passing through the point (3, 5).

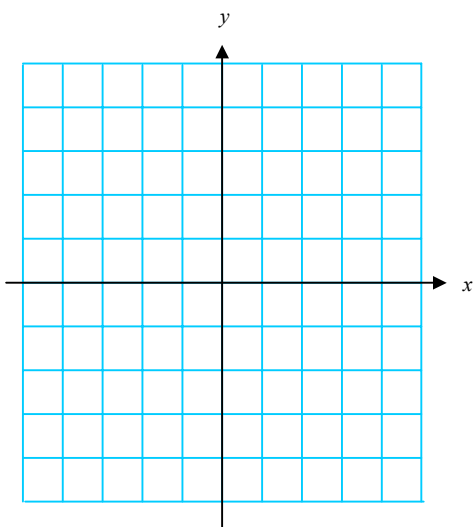
[**need help?** ... go back and read example 1 on page 279]

In other words, in §5.1 you were given the slope and the y – intercept. In §5.2 we took away the y – intercept, replaced it with a point and made you solve for the y – intercept.

In today's lesson, we are going to take away the slope, replace it with a second point and make you solve for the slope AND the y – intercept.

If this doesn't make perfect sense to you before you leave, go to <http://www.chaoticgolf.com> tonight and click on TUTORIALS, then select *Writing Equations of Lines in Slope-Intercept Form* to watch a PowerPoint presentation.

Example: Graph the points $(-2, 4)$ and $(4, -5)$ on the graph below. How many lines can you draw that go through both of these points?



Since there is only ONE line that goes through both of these points, we WANT to write the equation of this line. Follow these steps:

Example: STEP 1: Using the graph, **find the slope** of this line. $Slope =$ _____.

Example: STEP 2: Using the graph, **find the y – intercept** of this line. $Y - intercept =$ _____.

Example: STEP 3: **Write the equation** of the line. $Equation =$ _____.

We do not always want to graph the line to determine the equation. We can do all of this algebraically!

READ example 1 on page 285.

Example: What is the equation to find slope (using x 's and y 's)?

READ the box on page 286.

Example: In your own words, write the three steps to writing an equation of a line given two points.

STEP 1:

STEP 2:

STEP 3:

Example: Using these 3 steps, write the equation of a line that passes through the points $(-3, 1)$ and $(9, 5)$.

STEP 1:

STEP 2:

STEP 3:

Classwork: On your own paper (NOT ON THE WORKSHEET) complete WS 5.3 Practice A #1 – 15.