

Warm-Up Notes

MAT 100: ELEMENTARY ALGEBRA

Fall 2026

SECTION 4.5 USE THE SLOPE-INTERCEPT FORM OF AN EQUATION OF A LINE

Install — 10 minute lesson

Objectives of this Section

- Recognize the relation between the graph and the slope-intercept form of an equation of a line
- Identify the slope and y-intercept form of an equation of a line
- Graph a line using its slope and intercept
- Choose the most convenient method to graph a line
- Graph and interpret applications of slope-intercept
- Use slopes to identify parallel lines
- Use slopes to identify perpendicular lines

Skills

Introduced in this section:

No new skill introduced this section. **Also practiced:** LIN.SE (Finding the slope given an equation), LIN.GL (Graphing a Line), WRD.NM (Naming the model), LIN.SP (Finding the slope given points).

Lesson

Standard form hides a line's slope in plain sight. The moment you solve for y and get it into $y = mx + b$, the slope is just sitting there as the number in front of x — no guessing required. Once you can pull the slope out of any equation, you can compare two lines at a glance: same slope means parallel, and slopes that are negative reciprocals (multiply to -1) mean perpendicular.

I do

Watch. Determine whether the two lines are perpendicular by comparing their slopes. Show a brief justification. $2x - 6y = 4$; $12x + 4y = 9$

We do

Together. Determine whether the two lines are perpendicular by comparing their slopes. Show a brief justification. $8x - 2y = 7$; $3x + 12y = 9$

You do

Your turn. Determine whether the lines are parallel. $2x - 4y = 6$ and $x - 2y = 3$.

Your turn. Determine whether the lines are parallel. $y = -4$ and $y = 3$.

Practice

1. The line passes through the points $(0,-2)$ and $(1,2)$. Determine the slope m and the y-intercept b , and write the equation in the form $y = mx + b$.

2. For the line given by the equation $6x + 4y = 12$, determine its slope m and its y-intercept b .

3. For the line given by the equation $4x + y = 8$, determine its slope m and its y-intercept b .

4. Determine whether the lines are parallel. $x - y = 2$ and $2x - 2y = 4$.