

1. Equations of Lines

2. You should be familiar with the slope-intercept form of a line and the point-slope form of a line.

In this lesson, we will review various methods to determine the equation of a line.

3. In order to determine the equation of a line, we need two pieces of information, we need to know in which direction we are headed, and we need a starting point.
4. The direction is determined by the slope. There are a variety of ways to determine the slope. In some problems, we may be told the slope directly. We may be given two points on the line, we can then use the slope formula to find the slope. We may be told that a line is parallel to a given line. Parallel lines have the same slope. We may be told that a line is perpendicular to a given line. The slope of a line is the negative reciprocal of the slope of the perpendicular line.
5. In addition to the slope, we need to know a point on the line. If given an arbitrary point, we can use the point-slope form. If given the y-intercept, we can use the slope-intercept form, or use the fact that if the y-intercept is b , then the line goes through the point $(0,b)$. In that case, the point-slope form becomes the slope intercept form. If the x-intercept is a , the line goes through the point $(a,0)$.