

MCV 4U Learning Goals and Success Criteria
Chapter 8: Equations of Lines and Planes

Learning Goals	
I will be able to represent lines and planes using scalar, vector, and parametric equations, and solve problems involving distances and intersections. (GA4)	
Success Criteria	
I can: <ul style="list-style-type: none"> Recognize a scalar equation for a line in \mathbb{R}^2, and represent a line using a vector or parametric equation (convert between forms!) Recognize that a line in \mathbb{R}^3 cannot be represented by a scalar equation, and represent these with the scalar equations of two intersecting planes, or vector and parametric equations. Recognize a normal to plane geometrically and algebraically, and determine properties of the plane. Determine the scalar, vector, and parametric equations of a plane given one of the other forms. Solve problems relating to lines and planes in \mathbb{R}^3, and interpret the result geometrically. 	
Quest Information:	
Your "Quest" is Friday, October 19 th . You can come in early to start if you think that time may be an issue. I will open the door by 7:45 and you can start at 7:55. Staying in to period 2 is not an option, so plan ahead! You should not NEED extra time, but you are welcome to take it if it will make you feel less stressed!	
There is a more detailed outline below. These are the types of questions you can expect. To prepare well for this test, you should (in this order): <ul style="list-style-type: none"> Review your notes and makes study notes. We learned new vocabulary, so be sure that you actually understand it! Review/redo your quiz and go through the examples in the notes and be sure that you can do them yourself. Complete questions in the suggested review that you think you need to do. The text book should be your last stop, not your first! 	
Questions to Expect	<ul style="list-style-type: none"> Identify the parts of an equation in vector, parametric, and symmetric form (direction vector, point). Explain what a normal vector is, and then show why it is used in the Cartesian form of the equation of a line. Write an equation of a line in \mathbb{R}^2 in three different forms. Write an equation of a line in \mathbb{R}^3 in three different forms, and explain why Cartesian (or scalar) form is not possible. Find the angle formed between two lines. Write an equation for a plane in vector and parametric form given some information. Write an equation for a plane in Cartesian form given three points. Determine whether or not a point is on a plane. Explain how linear combinations and spanning sets are related to the vector equation of a plane. Describe what a plane would look like if you drew it, and then describe that general set of planes. (see the table on p. 471 for an example)
Text book Questions:	The review is long. I have selected some questions that might be relevant, but focus on notes, your quiz, homework, etc. The Chapter Test is actually a little more useful than the review. p. 480 #1 – 3, 6 – 9, 11, 13, 16, 19 – 21, 25, 29 – 31, 33 p. 484 #1, 3 - 6