

Name: _____

The situation: You and six friends are in the local woods on a tree-planting expedition but become separated and distracted. Unfortunately for the forest, you each have a different goal in mind and seem to have forgotten about the task at hand! Only running into one of your friends will remind you to get back to work.

- 1)** Acquire a scenario from your teacher and use it to plot your route on a piece of graph paper. You will need to find an equation that defines your route.

To do so, record your key points and determine the slope and equation of your line.

2) Once you've determined the equation of your line, find someone with a different scenario and determine where your paths could cross. Having seen your new partner you are reminded of the task at hand, and decide that you might as well investigate the immediate area for possible tree planting. You must use the available map(s) to determine what species of trees would be suitable for planting at that location (there may be only one, or more than one). Answer the following questions:

- a)** What is the equation of your new partner's line?
- b)** Find where your paths cross algebraically and graphically.
- c)** What type(s) of tree(s) would you plant at this location, and why? Use the information about preferred habitat for different tree species below.
- d)** Determine if your paths are perpendicular or parallel to one another. Justify your answer. If they are neither perpendicular nor parallel, describe in words how the slopes are related to one another.
- e)** Find both the x - and y -intercept of your line. Choose one that occurs within the boundaries of the provided map(s) and identify a tree species you would plant there.

Bonus: Find another person whose path intersects with you at a new location. The trees you would plant at this location must be different than those you would plant at the first intersection you found.

Species	Habitat Preferences
White Birch	Prefers sandy/silty soil. Often found at forest edges, lake shores, etc.
Beech	Prefers well-drained low lying areas.
Pine	Intolerant of shade. Prefers sandy, well-drained soil.
Fir	Typically found at higher elevations. Very shade tolerant.
White Spruce	Grows in a variety of soils and conditions. Shade tolerant but will grow well in full light
Sugar Maple	Prefers moist soils. Tolerates shade or direct sun.
American Beech	Prefers moist, well-drained slopes. Very shade tolerant.