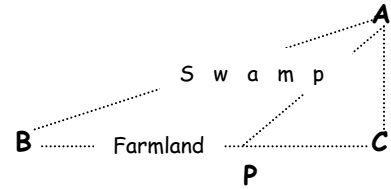


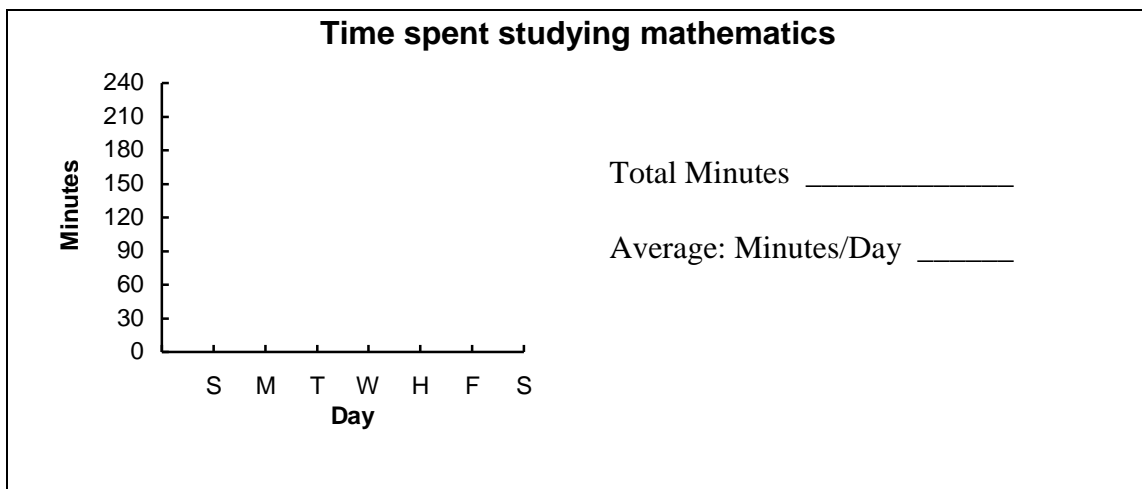
Math Problem: A telephone company is replacing copper cable with fiber-optic cable between city A and city B. The land above line BC is swamp, and the land along the line between B and C is farmland. It costs \$500,000 per mile to put the canal through farmland. It costs \$750,000 per mile to put it through swamp. The distance between B and C is 12 miles. The distance between A and C is 5 miles. The line AC is perpendicular to BC. Round answers to the nearest thousand dollars.

- (a) What is the cost of a direct route between A and B through the swamp? Show work.



- (b) Suppose P is some point between B and C. Let x = the distance between C and P. Write an expression that gives the cost of installation from A to P to B.
- (c) To the nearest tenth of a mile, where should P be placed relative to C? Find the minimum possible cost of installation. Explain what you did.

Journal Topic: Your best friend has just registered for Math 80 with Professor Clarke for Fall 2010. She asks you what advice you would give her. Write your friend a letter with your recommendations for a successful experience in Math 80.



Comments/Observations on the Course and your Progress (optional):