

Due Date: 8 December 2010 Wednesday

NAME:.....

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Math 113 Calculus – Homework 3

Question: We have a factory to which we want to provide coal from an island. The factory is located 50km inland from the coast line which is in the form of a straight line. The island is located 70 km out in the sea. The feet of the perpendiculars from the island and the factory on the shore line are 200km apart. We want to build a port on the shoreline so that the coal from the mine is first transported to this port and then carried to the factory. The cost of transportation on land is twice as much as that on sea. Where must we build this port so that we minimize our cost of transportation?

Show your work in reasonable detail.

Solution: