

SHORTEST DISTANCE AND REVIEW**LEARNING GOALS**

Students will:

- Apply midpoint, length, and slope formulas to solve problems.

APPLYING SLOPE, MIDPOINT AND LENGTH FORMULAS**EXAMPLE 1: FIND THE SHORTEST ROUTE**

A ranger cabin is to be built in a flat wooded area near the straight road that connects the two campgrounds in a park. A new side road will connect the cabin to the campground road. On the park map, the campgrounds have coordinates $A(2.0, 8.5)$ and $B(10.0, 4.5)$, while the side for the cabin is at $R(6.0, 1.5)$. Each unit on the map grid represents 500 m.

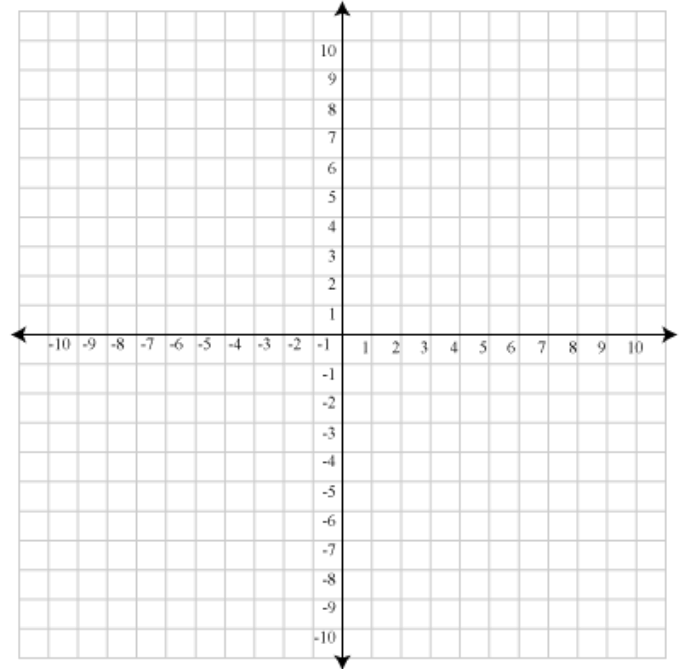
a) Find the route that minimizes the cost and the number of trees that have to be cut for the side road. Draw a diagram of this route.



b) Find the length of the side road, to the nearest tenth of a kilometre.

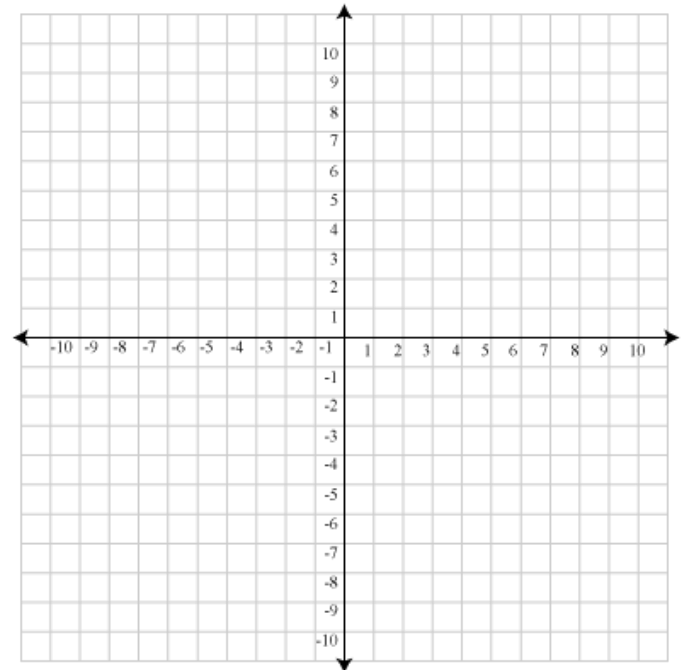
EXAMPLE 2: DETERMINE A GEOMETRIC PROPERTY ALGEBRAICALLY

The vertices of triangle ABC are A (5, 5), B (-3, -1), and C (1, -3). Determine whether triangle ABC is a right triangle.



EXAMPLE 3: MEDIAN TO HYPOTENUSE

Show that the median from the right angle of the triangle in Example 2, is half as long as the hypotenuse.



HOMEFUN ☺

Ho-Warm-up: Distance and Midpoint Applications

Ho-Shortest Distance to Line from a Point

Read pgs. 82-88. Pg. 89 #2,3,4,6,7,17,18