DUE:_____ **Name**_____

SHORTEST NETWORKS AND STEINER POINTS

A) Circle the image below that represents the shortest network connecting the four vertices.

figure 1

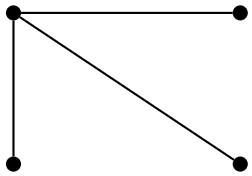


figure 2

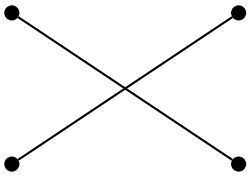


figure 3

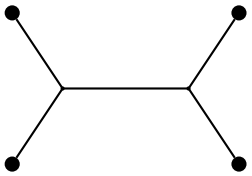
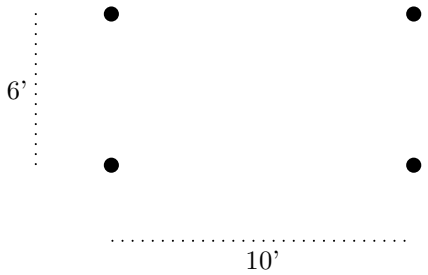


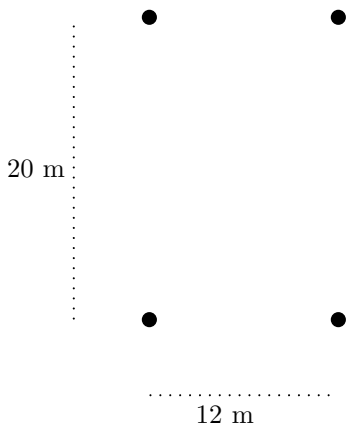
figure 4

B) Using a straight-edge in order to do so neatly, draw the shortest network for each of the following sets of vertices. After you have drawn the shortest network, find its length using your knowledge of special triangles in order to do so. A dotted vertical line and a dotted horizontal line have been included in order to give you the width and length of the diagram. Give your answer as an exact representation and then as an approximation to two decimal places. Be sure to include appropriate units.

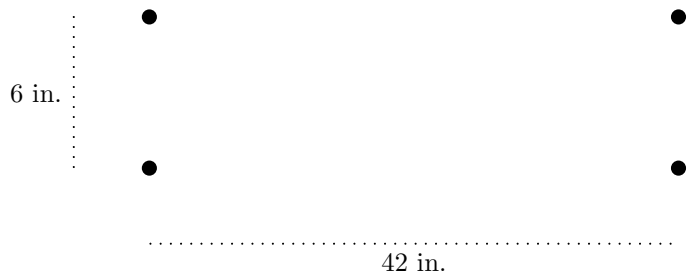
1)



2)



3)



C) Look back over your answers (the exact form of each answer) and see if you can find a pattern that could give you a shortcut for finding the length of a shortest network. Describe your shortcut in the space below - and do so well enough that someone else could use what you've written in order to carry this out. Then use this yourself in order to to find the length of the shortest network for the set of vertices at the bottom of this page.