

The Telecom Cable TV Max/Min Problem

A telecom company wants to lay a cable from point A to point B as shown in the diagram. One plan is to route the cable along the roads from A to C and then to B. An alternative is to go through the woods to a point along the road between C and B (and some distance x from C) and then the rest of the way along the road to B. Along the road, it costs \$12000 per mile to lay the cable. Going through the woods is more expensive, \$25000 per mile, because of the need to clear the route. So, while the distance through the woods is shorter, it increases the cost per mile. If the distance from A to C is 3 miles, and from C to B is 4 miles, how should the cable be routed to minimize the cost?

