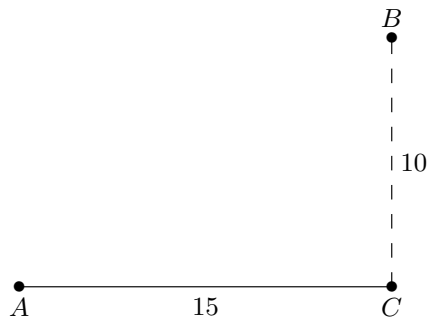


Extra problems for assignment 23

- A. As shown below, suppose the distance from  $A$  to  $C$  is 15 miles and the distance from  $C$  to  $B$  is 10 miles. Along the road through  $A$  and  $C$  you can drive at 60 mph, and off the road you can drive at 40 mph. Describe the fastest route from  $A$  to  $B$ .



Answer: Leave the road  $4\sqrt{5}$  miles from  $C$ .

- B. A city must lay a cable from point  $A$  to  $B$  in the diagram of the previous problem. It costs \$10,000 per mile to lay the cable along the road  $AC$ , and \$20,000 per mile off the road. What route will minimize the cost of laying the cable?

Answer: Leave the road  $10/\sqrt{3}$  miles from  $C$ .