

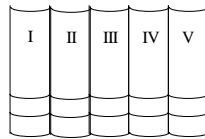


Neurological Nasties XVII

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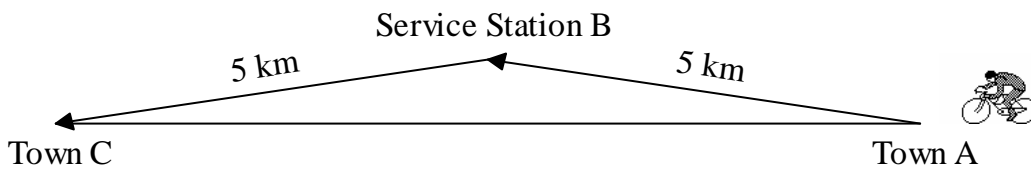


1. A bookworm started eating its way through a five volume set of encyclopedias starting at the front cover of volume I and ate its way through to the outside of the back cover of volume V. If each volume was 3 cm thick how far had the bookworm travelled ?
(You may assume the volumes are stacked in numerical order.)



2. In a time trial Brigid Bumsore wanted to average 40 km per hour cycling between two towns A and C which are 10 km apart. A service station B is sited exactly halfway between A and C and is reached after a long climb from A. When Brigid had climbed up to B she calculated that her average speed so far was only 20 km per hour.

How fast must she ride on the descent from B to C if she is to attain an overall average speed of 40 km per hour ?



3. The line of a new highway as it passes by the small towns of Vector and Calculus is to be perfectly straight. It is proposed to make one junction on the highway for the local residents and join it to the towns by straight roads as shown. Where should the junction be positioned to minimise the total length of the road V to J to C ?

