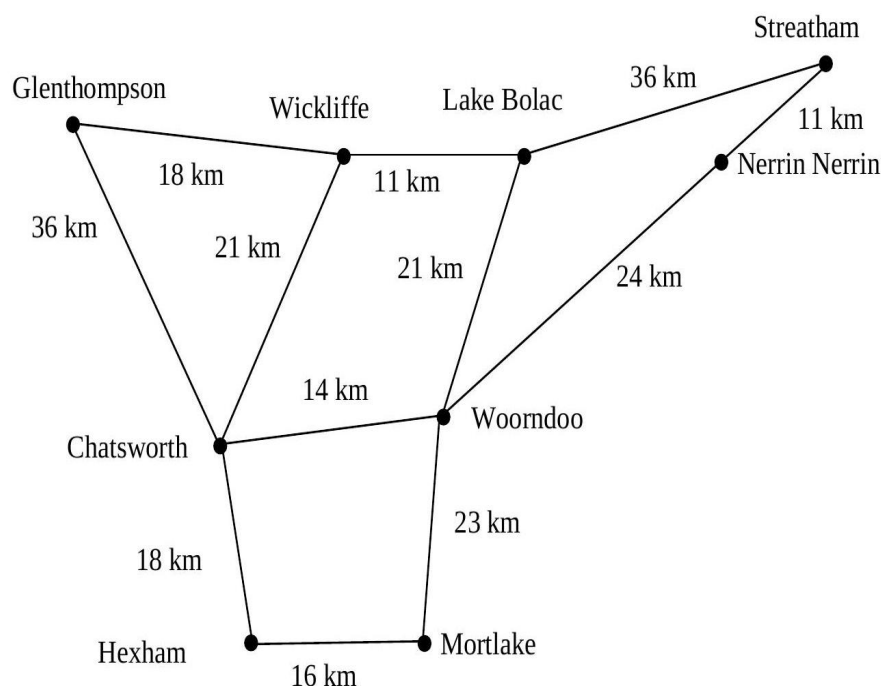


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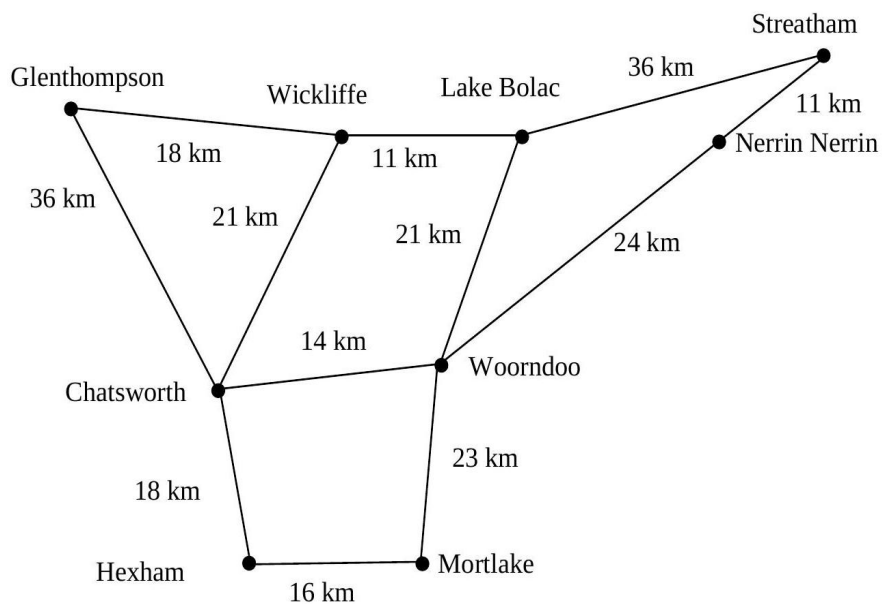
- 1 The following graph shows the roads linking nine Victorian country towns and the distances between them.



- a Verify Euler's rule for this graph.
- b Cycling enthusiasts from the nine towns are planning a race that uses the roads linking the towns.
- The organisers who live in Lake Bolac want to visit each town to gain support for the race. They plan to visit each town on the same day but not pass through any town more than once. They will start and finish at Lake Bolac.
- What is the technical name for the route they plan to take?
 - What is the distance they will have to travel to complete this trip? Identify one route they can follow. What is the other?
- c In planning the race route, the organisers would like the cyclists to:
- travel along each road linking the towns, but once only
 - start and finish at Lake Bolac.
- What is the technical name for the route they would like the cyclists to take?
 - Explain why this cannot be done.

Chapter 8 Graphs and networks: **Assignment**

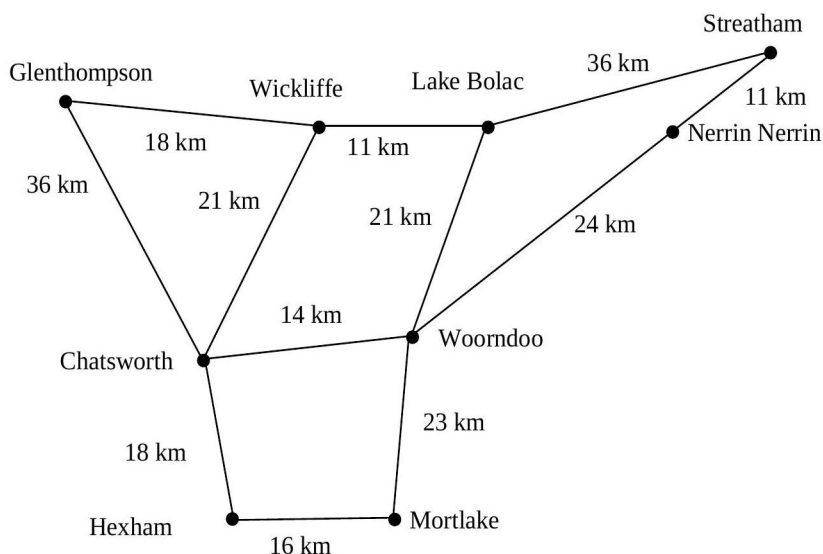
- d** The race planned in **part c** can start and finish at Lake Bolac with only one road being travelled along twice.
- i** Which road is this?
 - ii** List and mark in one possible route the race can follow starting and finishing at Lake Bolac, with only one road being travelled along twice.



- iii** What will be the total distance travelled?

Chapter 8 Graphs and networks: **Assignment**

- 2 A pay-TV company wants to link the nine towns with optical fibre cables. They plan to lay the cable out along the roads linking the towns, using the least length of cable possible.
- What is the technical name for the route the cables should follow?
 - Mark a possible route on the diagram below.



- What is the minimum length of cable needed to complete the task?
- The technician wants to travel between Nerrin Nerrin and Wyckliffe by the shortest distance possible. What is the shortest distance she can travel and what route will she take?