Year 10 | Space

Networks and connectedness

Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the explanation and worked example. Show your working; use a calculator only where asked.

What you will practise

• Represent practical relationships using vertices and edges.

• Explain a method and check the reasonableness of a result.

Useful starting skills: Use the prerequisite operations and representations shown in the worked example.

A network uses vertices for objects or places and edges for relationships or routes. An edge need not represent a straight physical line; its existence records a connection.

A path follows connected edges. A connected network has a path between every pair of vertices. Degree counts incident edges, with a loop counting twice if loops are present.

Worked example

A network has edges AB, BC, CD, DA and AC. Find vertex degrees.

A touches AB, DA, AC; C touches BC, CD, AC.

B and D each touch two edges.

Answer: A 3, B2, C3, D2

Try it yourself

Name: _____ Date: _____

1. For edges AB, BC, CD, is the network connected?

2. For edges AB and CD only, how many components?

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. Yes

Every vertex can be reached along the chain.

2. 2

The two pairs are disconnected.

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