# Direct and inverse proportion models

## 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

• Model proportional relationships and evaluate scaling and measurement assumptions.

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

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

Direct proportion has $y=kx$ with constant ratio $y/x$. Inverse proportion has $y=k/x$ with constant product $xy$. Determine $k$ from a known pair.

Check units, positive domains and whether the relationship is plausible. Measurement errors and real-world constraints can limit the model’s usefulness.

## Worked example

Six equal-speed pumps fill a tank in 4 hours. Model time for n pumps.

Total pump-hours$=6\times4=24$.

Assuming independent equal rates, $t=24/n$.

Answer: $t=24/n$ hours

## Try it yourself

Name: _____ Date: _____

1. y is directly proportional to x and y=18 when x=6. Find y at x=10.

2. y is inversely proportional to x and y=12 when x=5. Find y at x=8.

## Answers and explanations

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

1. 30

k=3, soy=3x.

2. 7.5

k=60; 60/8.

Curriculum reference: VC2M10M04

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