

## Title : Direct and Inverse Proportion

### Key Knowledge/Prior Learning KS2/3 and [Retrieval and Suggested Starters](#)

- Substitution
- Forming and Solving Equations

### KS4 National Curriculum – what students will be practicing

- Solve problems involving direct and inverse proportion, including graphical and algebraic representations
- Understand that  $x$  is inversely proportional to  $y$  is equivalent to  $x$  is proportional to  $1/y$
- Interpret equations that describe direct and inverse proportion
- Recognise and interpret graphs that illustrate direct and inverse proportion

### Specific Ambitious Knowledge

Finding the constant of proportion (usually  $k$ ) for each equation

Learning the proportionality symbol (fish symbol)

### Key Vocabulary/Literacy Opportunities

- Direct Proportion
- Inverse Proportion
- Forming and Solving Equations
- Varies
- ( $k$ ) Constant of proportion

## Key Formulae/Knowledge

For direct proportion understanding these formulas

$$A \propto B \text{ means } A = kB$$

$$A \propto B^2 \text{ means } A = kB^2$$

Here are the formulas you need for direct proportion

A is directly proportional to B

$$A = kB$$

A is directly proportional to  $B^2$

$$A = kB^2$$

A is directly proportional to  $B^3$

$$A = kB^3$$

A is directly proportional to  $\sqrt{B}$

$$A = k\sqrt{B}$$

For inverse proportion understanding these formulas

$$A \propto \frac{1}{B} \text{ means } A = \frac{k}{B}$$

$$A \propto \frac{1}{B^2} \text{ means } A = \frac{k}{B^2}$$

Here are the formulas you need for inverse proportion

A is inversely proportional to B

$$A = \frac{k}{B}$$

A is inversely proportional to  $B^2$

$$A = \frac{k}{B^2}$$

A is inversely proportional to  $B^3$

$$A = \frac{k}{B^3}$$

A is inversely proportional to  $\sqrt{B}$

$$A = \frac{k}{\sqrt{B}}$$

## Maths in Context (Historical, Real Life and Student Thinking Points)

- <https://donsteward.blogspot.com/2013/01/faster-film-rates.html>
- <https://donsteward.blogspot.com/2013/01/physics-in-proportion.html>
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<b>Projects/Enrichment/Investigations</b>
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| <ul style="list-style-type: none"><li>• <a href="#">Triathlon and Fitness</a></li></ul> |
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