

# INVERSE PROPORTION

Answer all of these questions. Remember to show your working out in all questions.

## MAIN QUESTIONS

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| <p>1. If <math>y</math> is inversely proportional to <math>x</math> and <math>y = 10</math> when <math>x = 2</math>, find <math>y</math> when <math>x = 5</math></p> | $y = 4$ | <p>2. Given that <math>p</math> is inversely proportional to <math>q^2</math> and <math>p = 8</math> when <math>q = 3</math>, find <math>p</math> when <math>q = 6</math></p> | $p = 2$ |
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## MASTER QUESTIONS

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| <p>M1. The time taken to fill a swimming pool is inversely proportional to the number of pumps used. If 4 pumps take 6 hours to fill the pool, how long would it take 3 pumps?</p>                    | 8 hours  |
| <p>M2. The brightness of a light source is inversely proportional to the square of the distance from the source. At 5 metres, the brightness is 100 lux. What is the brightness at 10 metres?</p>     | 25 lux   |
| <p>M3. The number of days a bag of rice lasts is inversely proportional to the number of people eating it. If 5 people can finish the bag in 12 days, how many days will it last for 8 people?</p>    | 7.5 days |
| <p>M4. The resistance of a wire is inversely proportional to the square of its diameter. If a wire of diameter 2mm has a resistance of 50 ohms, what is the resistance of a wire of diameter 5mm?</p> | 8 ohms   |

- M5.** The time taken to complete a task is inversely proportional to the number of workers. If 6 workers take 9 hours, how many workers are needed to complete the task in 6 hours? | 9 workers
- M6.** The gravitational force between two objects is inversely proportional to the square of the distance between them. If the force is 64 newtons at 3 metres, what is the force at 12 metres? | 4 newtons
- M7.** The number of sweets shared among children is inversely proportional to the number of children. If 20 sweets are shared among 4 children, how many sweets would each child get if there were 5 children? | 16 sweets
- M8.** The speed of a car is inversely proportional to the time taken to travel a fixed distance. If the car travels at 60 mph and takes 2 hours, how long would it take at 80 mph? | 1.5 hours
- M9.** The pressure of a gas is inversely proportional to its volume at constant temperature. If the pressure is 150 kPa when the volume is  $4 \text{ m}^3$ , what is the pressure when the volume is  $6 \text{ m}^3$ ? | 100 kPa
- M10.** The number of tiles needed to cover a floor is inversely proportional to the square of the side length of each tile. If 100 tiles of side 10cm are needed, how many tiles of side 20cm are needed? | 25 tiles