INVERSE PROPORTION

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

MAIN QUESTIONS

---

1. y is inversely proportional to x.
When x = 2, y = 6.
Find y when x = 3.

| $y = 4$

2. y is inversely proportional to x.
When x = 5, y = 10.
Find y when x = 2.

| $y = 25$

3. y is inversely proportional to x.
When x = 4, y = 8.
Find x when y = 16.

| $x = 2$

4. y is inversely proportional to x.
When x = 3, y = 12.
Find x when y = 9.

| $x = 4$

5. y is inversely proportional to x^2.
When x = 2, y = 5.
Find y when x = 4.

| $y = 1.25$

6. y is inversely proportional to x^2.
When x = 3, y = 2.
Find y when x = 6.

| $y = 0.5$

7. y is inversely proportional to x^2.
When x = 1, y = 10.
Find x when y = 2.5.

| $x = 2$

8. y is inversely proportional to x^2.
When x = 5, y = 4.
Find x when y = 1.

| $x = 10$

9. y is inversely proportional to $\sqrt{x}$.
When x = 9, y = 4.
Find y when x = 16.

| $y = 3$

10. y is inversely proportional to $\sqrt{x}$.
When x = 25, y = 10.
Find y when x = 100.

| $y = 5$

11. y is inversely proportional to $\sqrt{x}$. When x = 4, y = 6. Find x when y = 3.

$x = 16$

12. y is inversely proportional to $\sqrt{x}$. When x = 16, y = 5. Find x when y = 10.

$x = 4$

13. y is inversely proportional to x^3. When x = 2, y = 1. Find y when x = 4.

$y = 0.125$

14. y is inversely proportional to x^3. When x = 1, y = 8. Find y when x = 2.

$y = 1$

15. y is inversely proportional to x^3. When x = 3, y = 2. Find x when y = 0.25.

$x = 6$

16. y is inversely proportional to x^3. When x = 4, y = 0.5. Find x when y = 4.

$x = 2$

MASTER QUESTIONS

M1. The time taken to complete a task is inversely proportional to the number of workers. If 5 workers take 8 hours, how long would 10 workers take?

4 hours

M2. The intensity of light is inversely proportional to the square of the distance from the source. At 3 metres, the intensity is 100 lux. What is the intensity at 6 metres?

25 lux

M3. The speed of a car is inversely proportional to the time taken to travel a fixed distance. If the speed is 60 mph, the time taken is 2 hours. What speed is needed to complete the journey in 1.5 hours?

80 mph

M4. The pressure of a gas is inversely proportional to its volume at constant temperature. If the volume is 4 m^3 at a pressure of 100 kPa, what is the pressure when the volume is 5 m^3?

80 kPa