INVERSE PROPORTION

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

MAIN QUESTIONS

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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 = 10, y = 5.
    Find x when y = 2

    x = 25

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

    y = 0.75

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 = 5, y = 10.
    Find x when y = 2.5

    x = 10

8. y is inversely proportional to x^2.
    When x = 4, y = 5.
    Find x when y = 1.25

    x = 8

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 = 16, y = 5. Find x when y = 10

$x = 4$

12. y is inversely proportional to $\sqrt{x}$. When x = 36, y = 6. Find x when y = 4

$x = 81$

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 = 5. Find y when x = 2

$y = 0.625$

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 = 5, y = 0.8. Find x when y = 0.1

$x = 10$

MASTER QUESTIONS

M1. The time taken to complete a task is inversely proportional to the number of workers. If 4 workers take 9 hours to complete the task, how long would 6 workers take?

6 hours

M2. The intensity of light is inversely proportional to the square of the distance from the source. At 5 metres, the intensity is 100 units. What is the intensity at 10 metres?

25 units

M3. The gravitational force between two objects is inversely proportional to the square of the distance between them. If the force is 36 newtons at 2 metres, what is the force at 6 metres?

4 newtons

M4. The time taken to fill a tank is inversely proportional to the square of the radius of the pipe. If a pipe of radius 3 cm fills the tank in 8 hours, how long would a pipe of radius 6 cm take?

2 hours