**1. A does 4/5 th of work in 3/5 of time as compared to B. Together they finish the work**

**in 12 days. In how many days A alone will complete the work?**

**Ans:** A does 4/5th of the work in 3/5th of the time compared to B.

Together, A and B finish the work in 12 days.

Let's assume that B takes 'x' days to complete the work alone. This means that A takes (3/5)x days to complete 4/5th of the work.

Now, let's calculate their individual rates of work:

Rate of work for A = 1 / ((3/5)x) = 5/3x work per day

Rate of work for B = 1 / x work per day

Since we know that they finish the work together in 12 days, we can set up the equation:

(5/3x + 1/x) \* 12 = 1

Simplifying the equation, we have:

(60/3x + 12/x) = 1

(20/x + 12/x) = 1

(32/x) = 1

x = 32

Therefore, B takes 32 days to complete the work alone.

Now, to find the time taken by A to complete the work alone, we substitute the value of x into (3/5)x:

(3/5) \* 32 = 96/5

So, A alone will take **96/5 days** to complete the work.

Please note that the answer is provided in fractional form (96/5 days) since it is not a whole number.

**2. 1 men , 3 women and 4 children finish work in 96 hour while 2 men and 8 children**

**finish the work in 80 hours, and 2 men and 3 women finish the same work in 120**

**hours. Find the time in which the work can be completed by 10 men and 5 women?**

Ans: 1 man,3 women and 4 children complete a work in 96 hrs. while 2 men and 8 children complete the same work in 80 hrs and 2 men and 3 women can complete it in 120 hrs

CONCEPT: We will assume that in one day a man does x amount of work, a woman does y amount of work and child does z amount of work.

CALCULATION: Let total work be LCM of 96,80,120 = 480 units

1 man,3 women and 4 children complete 5 unit of work in one day ⇒ x + 3y + 4z = 5 ----(1)

Similarly, 2x + 8z = 6 ----(2) and 2x + 3y = 4 ----(3)

Solving 1, 2 and 3, we get x = 1, y = 2/3, z = 1/2

10 men and 5 women work in one day = 10x + 5y = 10 + 10/3 = 40/3 unit

Time taken = 480/(40/3) = **36 hrs**

**3. The sales of a cinema ticket increase by 57 1/7 %, and the price of tickets also**

**increases by 16 2/3%. Find the percentage increase in the revenue collection?**

Ans: Let the number of seats be x and the price of each ticket be Rs y.

Total revenue collected = Rs xy

Number of seats are increased by 25% ⇒ 1.25 x

Price of each ticket is increased by 10% ⇒ .90y

Total revenue collected = 1.25x × .90y = 1.125 xy

Increased revenue = 1.125 xy - xy = 0.125 xy

Percentage increase = (0.125 xy) / (xy) × 100 = 12.5 %.

**4. In a garrison, there was sufficient food for 1600 soldiers for 60 days. Each soldier**

**consumes 900 grams of food every day. After 40 days, 400 soldiers left the camp.**

**How long the food will last for the remaining soldiers if they consume 1000 grams of**

**food every day.**

Ans: Initially, there is sufficient food for 1600 soldiers for 60 days, with each soldier consuming 900 grams of food every day.

To find out how long the food will last for the remaining soldiers, we need to consider the change in the number of soldiers and their daily consumption.

After 40 days, 400 soldiers leave the camp. This means that the number of remaining soldiers is 1600 - 400 = 1200 soldiers.

Now, the remaining soldiers consume 1000 grams of food every day.

To calculate the new duration that the food will last, we can set up a proportion based on the principle that the total amount of food consumed should remain the same before and after the change:

(Initial number of soldiers \* Initial number of days \* Initial daily consumption) = (Remaining number of soldiers \* Remaining number of days \* Remaining daily consumption)

Using the given information:

(1600 \* 60 \* 900 grams) = (1200 \* x days \* 1000 grams)

Simplifying the equation:

(1600 \* 60 \* 900) / (1200 \* 1000) = x

Calculating this expression will give us the value of 'x', which represents the number of days the food will last for the remaining soldiers at the increased daily consumption of 1000 grams.

Please perform the calculation to find the value of 'x'.

or

Apologies for the inconvenience caused. Let's continue with the solution.

Using the given equation:

(1600 \* 60 \* 900) / (1200 \* 1000) = x

Simplifying the expression:

(86400000) / (1200000) = x

72 = x

Therefore, the food will last for **72 days** for the remaining soldiers if they consume 1000 grams of food every day.

**5. A dealer sold a bicycle at a profit of 10%. Had he bought the bicycle at 10% less price**

**and sold it at a price Rs. 60 more, he would have gained 25%. The cost price of the**

**bicycle was?**

Ans: Suppose C.P. of cycle = Rs. y

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ∴ S.P. = |  | 110y | = Rs. | 11y |  |
| 100 | 10 |

Case II,

|  |  |  |
| --- | --- | --- |
| New C.P. = Rs. | 9y |  |
| 10 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ∴ |  | 11y | + 60 = | 9y | × | 125 |  |
| 10 | 10 | 100 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ⇒ |  | 11y | + 60 = Rs. | 9y |  |
| 10 | 8 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ⇒ |  | 9y | - | 11y | = 60 |
| 8 | 10 |

|  |  |  |
| --- | --- | --- |
| ⇒ | 90y - 88y | = 60 |
| 80 |

|  |  |  |
| --- | --- | --- |
| ⇒ | 2y | = 60 |
| 80 |

|  |  |  |
| --- | --- | --- |
| ⇒ | y | = 60 |
| 40 |

⇒ y = 60 × 40 = **Rs. 2400**