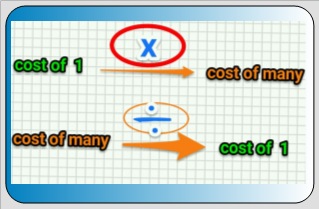
**Unitary Method**

**Unitary Method**

*source: www.creativeakademy.org*Fig: Unitary Method

It is a technique in mathematics for solving a problem finding the value of the single unit and then finding the necessary value by multiplying the single unit value. If the quantities are in direct proportion, unit value is obtained by division. Similarly, if the quantities are in inverse proportion, unit value is obtained by multiplication. For examples,

Suppose the cost of 5 pens is Rs. 50.

Then, the cost of 1 pen is Rs. 505

= Rs. 10

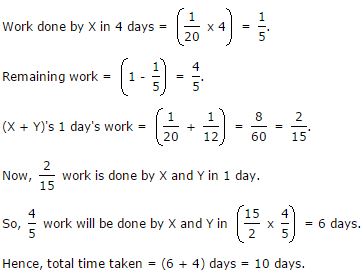
Here, 1 pen is the unit of quantity and Rs. 10 is the unit cost. The number of pens and their cost is in direct proportion.

Again, suppose 4 men can finish a work in 6 days.

Then, 1 man can finish the work in 4 × 6 days = Rs. 24 days.

Here, the number of men and their working days are in inverse proportion.

**Time and Work**

*source: www.bankers-adda.com*  
Fig: Time and Work

In less time we do less amount of and in more time we do the greater amount of work. So, Time and amount of work done are in direct proportion. In this case, the amount of work done in unit time is obtained by division. For example,

In 8 days, Hari can do 1 work.

In 1 day, Hari can do 18

part of work.

18

parts of work are done in 1 day.

Similarly, in 2 days, Hari can do28

=14

parts of the work

In 3 days, Hari can do38

parts of the work.

In 4 days, Hari can do48

=12 parts of work and so on.

Things to remember

* If the quantities are in direct proportion, unit value is obtained by division.
* If the quantities are in inverse proportion, unit value is obtained by multiplication.
* The amount of work done in unit time is obtained by division.

### Questions and Answers

#### Click on the questions below to reveal the answers

**[The cost of 12 m of clothes is Rs 600, find the cost of 8 m of clothes.](file:///D:\\Project%20materail\\test.html" \l "collapse31798)**

Solution:

The cost of 12 m of clothes = Rs 600  
The cost od 1 m of clothes = Rs 60012

= Rs 50  
The cost of 8 m of clothes = 8 × Rs 50   
= Rs 400   
So, the required cost of 8 m of clothes is Rs 400.

**[The floor of a room is 14 m long and 8.5m broad. Find the cost of carpeting the floor at Rs 75 per sq. m.](file:///D:\\Project%20materail\\test.html" \l "collapse31800)**

Solution:

Here,  
the length of the floor (l) = 14 m  
the breadth of the floor (b) = 8.5m  
∴ Area of the floor = l × b  
= 14m × 8.5m  
= 119 m2  
Now,   
the cost of carpeting 119 m2 is 119 × Rs 75   
= Rs  8925  
So, the required cost of carpeting the floor is Rs 8925.

**[A man pays Rs 525 for income tax at the rate of Rs 2 per Rs 100, Find his income.](file:///D:\\Project%20materail\\test.html" \l "collapse31809)**

Solution:

Here,   
Rs 2 is the tax for the income of Rs 100   
Re 1 is the tax for the income of Rs 1002

= Rs 50  
Rs 525 is the tax for the income of Rs 525 × 50   
= Rs 26250  
So, the required income of the man is Rs 26250

**[7 workers build a wall in 20 days. how many more workers should be employed to build it in 14 days?](file:///D:\\Project%20materail\\test.html" \l "collapse31815)**

Solution:

Here,   
In 20 days, 7 workers build a wall  
In 1 days, 20 × 7 workers build the wall  
In 14 days, 20×714

workers build the wall = 10 workers build the wall   
∴ The required number of workers to be added = 10 - 7   
= 3 workers

**[Hari can do a piece of work in 8 days. He worked for 6 days and left. If Gopal finished the remaining work, how much work did he do ?](file:///D:\\Project%20materail\\test.html" \l "collapse31817)**

Solution:

Here,   
In 8 days, Hari can do 1 work   
In 1 day, Hari can do 18

parts of the work.  
In 6 days, Hari can do 68 parts of the work = 34 parts of the work.  
Now,  
Remaining parts of work = (1 - 34)   
= 14 parts  of the work  
So, Gopal finished 14 part of the work

Quiz

**If the cost of 1 liter of oil is Rs 72.75, what will be the cost of 12 liter oil?**

Rs 863  
Rs 873  
Rs 843  
Rs 835

**If a bus covers 277.8 km in 6 hours, find the speed of the bus in km per hour.**

44.3 km per hour  
56.4 km per hour  
46.3 km per hour  
36.54 km per hour

**8 men can complete a work in 15 days. How many men are needed to complete the work in 10 days?**

12 men  
10 men  
9 men   
11 men

**8 men can complete a work in 15 days. In how many days would 12 men complete the same work?**

9 days  
10 days  
11 days   
12 days

**A man pays Rs 525 for income tax at the rate of Rs 2 per Rs 100. What will be his income?**

Rs 24450  
Rs 27250  
Rs 25350  
Rs 26250

**How much is the income tax on Rs 15000 at the rate of 25 paisa per Rs 5?**

Rs 750  
Rs 1000  
Rs 925  
Rs 875

**Sunil can do a piece of work in 5 days. How much work can he do in 2 days?**

(frac{4}{5})  
(frac{1}{5})  
(frac{2}{5})  
(frac{3}{5})

**Sarmila can finish a piece of work in 12 days. How much work can she finish in 4 days?**

(frac{3}{9})  
(frac{2}{6})  
(frac{1}{4})  
(frac{4}{12})

**Shreya can do a piece of work in 5 days. How much work can she do in 4 days?**

(frac{2}{5})  
(frac{1}{5})  
(frac{3}{5})  
(frac{4}{5})

**Kumar can finish a piece of work in 12 days. How much work can he finish in 6 days.**

(frac{1}{2})  
(frac{1}{12})  
(frac{2}{6})  
(frac{3}{4})