Quantitative Aptitude Tricks - PDF Download

Topics :

1. Simplification
2. Number Series
3. Percentage
4. Profit and Loss
5. Simple Interest and Compound Interest
6. Ratio and Proportion
7. Time and Work
8. Time Speed and Distance

#1 SIMPLIFICATION

Q1.

$8^{12} \div 16^{2}$ of $32^{3} \times \sqrt{256} = 2^{?}$

Sol :

$(2^{3})^{12} \div (2^{4})^{2}$ of $(2^{5})^{3} \times 16 = 2$

$2^{36} \div 2^{8}$ of $2^{15} \times 2^{4} = 2^{?}$

$2^{17} = 2^{?}$

$? = 17$

Q2.

$108 \div 36$ of $^{1}/_{4} + {}^{2}/_{5} \times 3{}^{1}/_{4} = ?$

Sol :

$108 \div 9 + {}^{2}/_{5} \times {}^{13}/_{4} = ?$

$12 + {}^{13}/_{10}$

$? = 13{}^{3}/_{10}$

Q3.

$33{}^{1}/_{3}\%$ of $633 + 129 = 66{}^{2}/_{3}\%$ of $= ?$

Sol :

$^{1}/_{3} \times 633 + 129 = {}^{2}/_{3} \times ?$

$(211+129) \times {}^{3}/_{2} = ?$

$? = 340 \times {}^{3}/_{2} = 170 \times 3 = 510$

More Tricks on Simplification and Download PDF : Click Here

#2 Number Series

Basic Concept Starts From Here : Click Here

Q1.

In each series only one number is wrong. Find out the Wrong number.

- 5531, 5506, 5425, 5304, 5135, 4910, 4621 **(IBPS PO 2012)**

Hint: -7^2, -9^2, -11^2

- 1, 3, 10, 36, 152, 760, 4632 **(IBPS PO 2012)**

Hint : ×1+2, ×2+4, ×3+6 ...

- 4, 3, 9, 34, 96, 219, 435 **(IBPS PO 2012)**

Hint : $+1^3$ -2 , $+2^3$ -2 , $+3^3$ -2, ...

- 5, 7, 16, 57, 244, 1245, 7506 **(Allahabad Bank PO 2010)**

Hint : $\times 1+1^2, \times 2+2^2$

- 2.5,3.5,6.5,15.5,41.25,126.75 **(Allahabad Bank PO 2010)**

Hint : $\times 1/2+1/2, \times 1+1, \times 3/2+3/2$ ....

#3 Percentage

Basic Concepts Starts Here : Click Here

Q1.

If the income of Ram is 10% more than that of Shayam's income. How much % Shyam's income is less than that of Ram's income ?

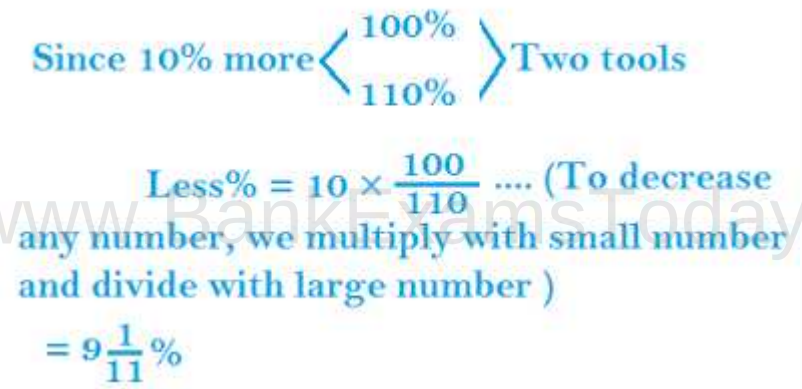
Method I.

By using formula

less% = r/100+r ×100 = 10/100+10 × 100

= 10/110 ×100 = 9 1/11%

Method II.



Q2.

A man spends 40% on food, 20% on house rent, 12% on travel and 10% on education. After all these expenditure he saved Rs. 7200. Find the amount spent on travel ?

Method I.

Let total income x

total expenditure

= x × (40%+20%+12%+10%)

= x × 82%

Total saving = x - x × 82%

= x × 18%

Then x × 18% = 7200

x = 7200/18×100 = 40,000

Expenditure on travel = 12%

x × 12% = 40,000×12/100 = Rs. 4800

Method II.

Total income = 100% - represent total

100% -82% = 18% (saving)

Expenditure on Travel = 7200/18×12

= 4800

Q3.

When numerator of a fraction is increased by 10% and denominator decreased by 20% the resultant fraction becomes 5/8. Find the original fraction ?

Method I.

Let the original fraction be x/y then -

$$\frac{x+\frac{x\times 10}{100}}{y-\frac{y\times 20}{100}}=\frac{5}{8}$$

$$\frac{\frac{x\times 110}{100}}{\frac{y\times 80}{100}}=\frac{5}{8}$$

$$\frac{x}{y}=\frac{5}{8}\times\frac{80}{110}=\frac{5}{11}$$

Method II.

Given Fraction = 5/8

Original fraction = 5/8×80/110

= 5/11 Ans.

Q4.

If the length of a rectangle is increased by 20% and breath is decreased by 10%. Find the net% change in the area of that rectangle.

Sol:

net% change = x+y+ x×y/100

(+20)×(-10)/100

= +10-2

=8

Increase % = 8% Ans.

Q5.

A reduction of 10% in the price of tea would enable and purchase to obtain 3 Kg. more for 2700 Rs. Find the reduced rate (new rate) of tea ?

Sol :

10% 2700 = Rs. 270

Rs. 270 is the rate of 3 kg. of tea

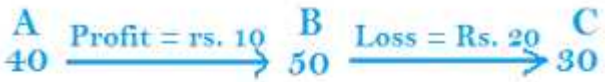
1 kg of tea = Rs. 90/- kg,

#4 Profit and Loss

Basic Concept Starts Here : Click Here

Statement

A purchase an article at Rs 40 Rs. and sells it to B at rs. 50 and B sells its to C at Rs. 30



CP of A = Rs. 40
SP of A = Rs. 50

CP of B = Rs. 50
SP of B = Rs. 30
CP of C = Rs.30

For A, Profit = 50-40 = 10
For B, Loss = 50 -30 = 20

For A, P =SP-CP
For B, L= CP-SP

For A, Percent Profit = Profit of A/CP of A×100
For B, Percent loss = Loss of B/CP of B×100
For A, 10/40×100 = 25%
For B, 20/50×100 = 40%
P% = P/CP×100
L% = L/CP×100

Q1.

A person purchased an article for Rs. 80 and sold it for Rs. 100.Find his % profit.
Sol:
CP of the article = Rs. 80
SP of the article = Rs. 100
Profit of the person = 100-80 = Rs. 20
% Profit of the person = Profit /CP×100
%P = 20/80×100
%P = 25%

Trick:
%P = 20/80×100 = 25%

Q2.

A dishonest shopkeeper sells goods at his cost price but uses a weight of 900 gm for a kg. weight. Find his gain percent.
Sol:
The Cp of Shopkeeper = 900 gm
The Sp of Shopkeeper
= 1000 gm (1kg = 1000 gm)
The profit of shopkeeper
= 1000 -900 = 100 gm
% profit shopkeeper
$= \frac{\text{Profit of shopkeeper}}{\text{CP of shopkeeper}} \times 100$
$\%P = \frac{100}{900} \times 100 = 11\frac{1}{9}\%$

Q3.

A person got 5% loss by selling an article for Rs. 1045. At what price should the article be sold to earn 5% profit ?
Sol:
Trick :
New SP = 1045/95×105 = 1155

Q4.

A person sold an article at profit of 12%. If he had sold it Rs. 3.60 more, he would have gain 18%. What is the cost price ?
Sol:
Trick :
CP = 3.60/6×100 = Rs. 60

Q5.

If the CP of 12 articles is equal to the SP of 9 articles. Find the gain or loss.
Sol : Let the CP of each article be Rs. 1
Then CP of 9 articles = Rs. 9
SP of 9 articles = Rs. 12
Gain % = $\frac{3}{9} \times 100 = 33\frac{1}{3}\%$

5 Simple and Compound Interest

Basic Concept Starts From Here : Click Here

Q1.

At what rate of interest per annum will a sum double itself in 8 years ?
Sol:
Trick :

$$R = \left(\frac{N-1}{T}\right) \times 100$$

$$= \frac{2-1}{8} \times 100$$

$$= 12.5\%$$

Q2.

A sum of money double itself at compound interest in 15 years. In how many years will it become eight times.
Trick :

$$n_2 = (n_1)^{\frac{t_2}{t_1}}$$

n = no. of times

t = number of years

$$8 = (2)^{\frac{t_2}{15}}$$

$$2^3 = (2)^{\frac{t_2}{15}}$$

$$\frac{t_2}{15} = \frac{3}{1}$$

t_2 = 45 years

#6 Ratio and Proportion

Q1.

The ratio between the length and the breadth of a rectabgular field is 5:4 respectively. If the perimeter of that field is 360 meters. what is the breadth of that field in meters ?
Sol :
Perimeter = 2(5+4) = 18
Mean value of 18 = 360
Breadth = $^{360}/_{18} \times 4$ = 80 meters

Q2.

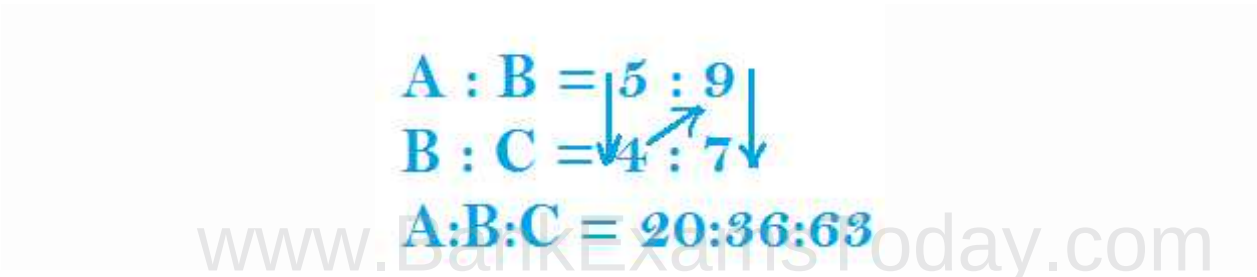
A bag contains 50 P, 25 P and 10 P coins in the ratio 5:9:4 amounting to Rs. 206. Find the number of coins of each type.
Sol:
Let the number of 50P,25P and 10P coins be 5x,9x and 4x respectively
5x/2+9x/4+4x/10 = 206
50x + 45x + 8x = 4120
103x = 4120
x = 40
No. of 50 P coins = 5×40 = 200
No. of 25 P coins = 4×40 = 160
No. of 10 P coins = 9×40 = 360

Q3.

A mixture contains alcohol and water in the ratio of 4:3. If 5 liters of water is added to the mixture the ratio becomes 4:5. Find the quantities of alcohol in the given mixture.
Sol:
Let the quantity of alcohal and water be 4x liters and 3x liters respectively.
$4x/_{3x+5} = 4/5$
8x =20
x = 2.5

Q4.

A:B = 5:9 and B:C = 4:7 Find A:B:C.
Sol:

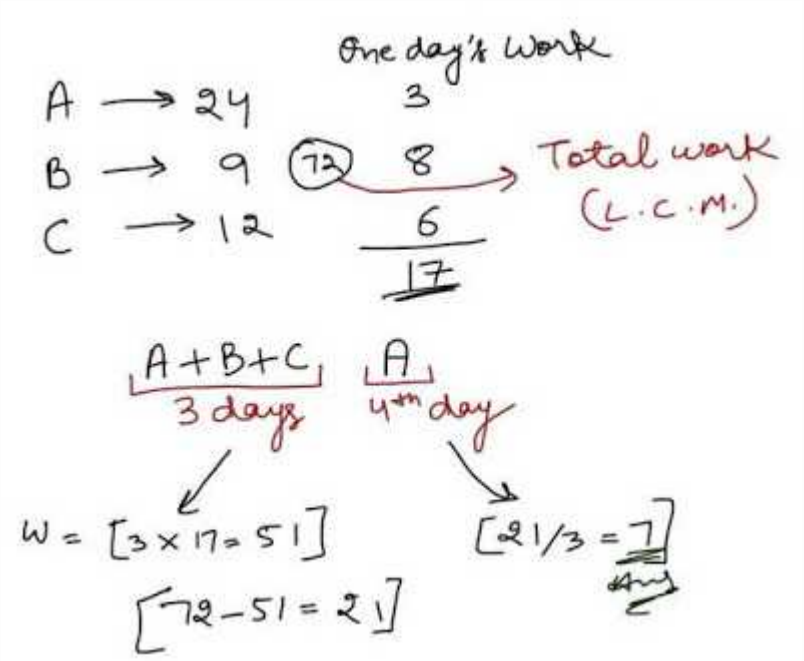


#7 TIME AND WORK

Q1.

A and B together can complete a piece of work in 4 days. If A alone can complete the same work in 12 days, in how many days can B alone complete that work ?**(S.S.C.2003)**

Sol:

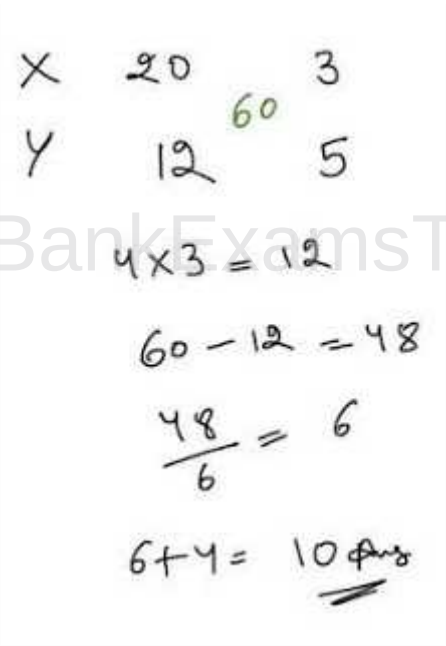


Q2.

X and Y can do a piece of work in 20 days and 12 days respectively. X started the work alone and then after 4 days Y joined him till the completion of the work. How long did the work last ?

(Bank PO,2004)

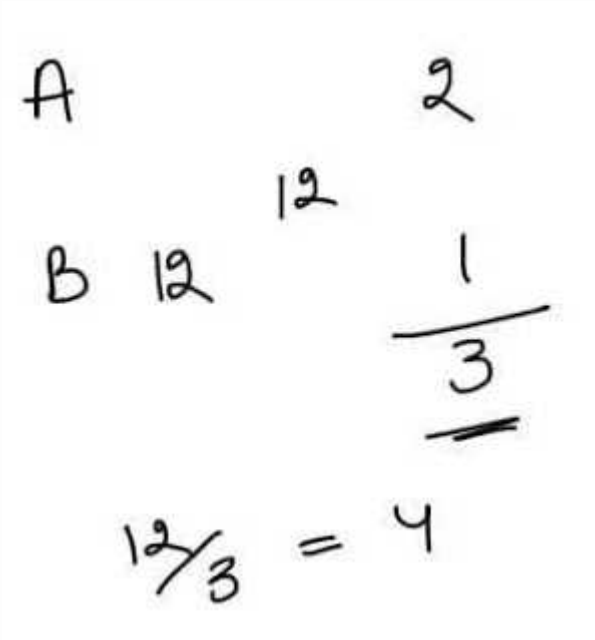
Sol:



Q3.

A is thrice as good a workman as B and together is able to finish a job in 60 days less than B. Working together, they can do it in ?

Sol :



#8 TIME, SPEED AND DISTANCE

CONCEPTS

1) There is a relationship between speed, distance and time:

Speed = Distance / Time OR

Distance = Speed* Time

2) Average Speed = 2xy / x+y

where x km/hr is a speed for certain distance and y km/hr is a speed at for same distance covered.

**** Remember that average speed is not just an average of two speeds i.e. x+y/2. It is equal to 2xy / x+y

3) Always remember that during solving questions units must be same. Units can be km/hr, m/sec etc.

**** Conversion of km/ hr to m/ sec and m/ sec to km/ hr

x km/ hr = (x* 5/18) m/sec i.e. u just need to multiply 5/18

Similarly, x m/sec = (x*18/5) km/sec

4) As we know, Speed = Distance/ Time. Now, if in questions Distance is constant then speed will be inversely proportional to time i.e. if speed increases ,time taken will decrease and vice versa.

TIME AND DISTANCE PROBLEMS

Problem 1: A man covers a distance of 600m in 2min 30sec. What will be the speed in km/hr?

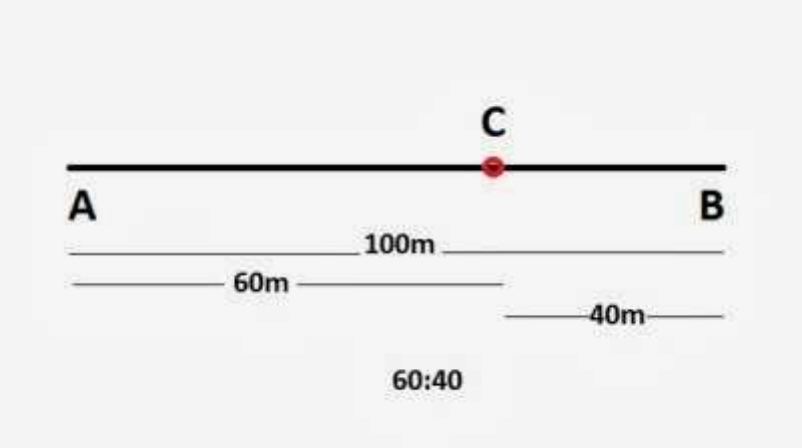
Solution: Speed =Distance / Time
⇒ Distance covered = 600m, Time taken = 2min 30sec = 150sec
Therefore, Speed= 600 / 150 = 4 m/sec
⇒ 4m/sec = (4*18/5) km/hr = 14.4 km/ hr.

Problem 2: A boy travelling from his home to school at 25 km/hr and came back at 4 km/hr. If whole journey took 5 hours 48 min. Find the distance of home and school.

Solution: In this question, distance for both speed is constant.
⇒ Average speed = (2xy/ x+y) km/hr, where x and y are speeds
⇒ Average speed = (2*25*4)/ 25+4 =200/29 km/hr
Time = 5hours 48min= 29/5 hours
Now, Distance travelled = Average speed * Time
⇒ Distance Travelled = (200/29)*(29/5) = 40 km
Therefore distance of school from home = 40/2 = 20km.

Problem 3: Two men start from opposite ends A and B of a linear track respectively and meet at point 60m from A. If AB= 100m. What will be the ratio of speed of both men?

Solution: According to this question, time is constant. Therefore, speed is directly proportional to distance.
Speed∝Distance



⇒ Ratio of distance covered by both men = 60:40 = 3:2
⇒ Therefore, Ratio of speeds of both men = 3:2

Problem 4: A car travels along four sides of a square at speeds of 200, 400, 600 and 800 km/hr. Find average speed.

Solution: Let x km be the side of square and y km/hr be average speed
Using basic formula, Time = Total Distance / Average Speed

x/200 + x/400 + x/600 + x/800 = 4x/y ⇒ 25x/ 2400 = 4x/ y⇒ y= 384
⇒ Average speed = 384 km/hr