1. Mr. Rohit has completed 10 innings and his average is 21.5 runs. How many runs must he make in his next innings so as to raise his average to 24?
2. 42
3. 45
4. 47
5. **49**

Total of 10 innings = 21.5 x 10 = 215  
  
suppose he needs a score of a in 11th innings; then average in 11 innings

= (215+a)/11=24  
or, a = 264-215 = 49

1. 1/3rd of certain journey is covered at the rate of 25 km/hr., 1/4th at the rate of 30 km/hr. and rest at 50 km/hr. Find the average speed for the whole journey?
2. [32 1/3 km/hr](javascript:;).
3. [**33 1/3 km/hr**](javascript:;)**.**
4. [34 1/3 km/hr](javascript:;).
5. [35 1/3 km/hr](javascript:;).

Let the journey by a km. Then a/3 km at the speed of 25 km/hr and a/4 km at 30 km/hr and the rest distance (a- a/3 –a/4) = 5/12 x a at the speed of 50 km/hr.  
   
Total time taken during the journey of a km

a/(3x25) +a/(4x30) +5a/(12x50) = 18a/(600)

=3a/10

a / (3a/100) = 100/3 = 33 1/3 km/hr.

1. A van owner buys petrol at Rs 7.50, Rs. 8 and Rs. 8.50 per litre for three successive years. What approximately is the average cost per litre of petrol if he spends Rs. 4000 each year?
2. [**7.98**](javascript:;)
3. [8.58](javascript:;)
4. [8.32](javascript:;)
5. [4.98](javascript:;)

Quantity of petrol consumed in 3 years = 4000/7.50 + 4000/8 + 4000/8.5 litres

=4000(2/15 + 1/8 +2/17)

=76700/51 litres

Total amount spent = Rs.(3 x 4000) = Rs.12000.

Average cost =(12000 x 51)/(76700) =Rs.7.98

1. The arithmetic mean of the scores of a engineers in an examination was 52. The brightest 20% of them secured a mean score of 80 and the dullest 25% a mean score of 31. The mean score of remaining 55% is:
2. [**51.4**](javascript:;)
3. [53.6](javascript:;)
4. [54.4](javascript:;)
5. [55.6](javascript:;)

Let the required mean score be b

Then, 20 x 80 + 25 x 31 + 55 x b = 52 x 100

1600 + 775 + 55b = 5200

55b = 2825

b= 51.4

1. In 2010, the average of a family of 5 members was 17 years. A baby having been born, the average age of the family is the same today. The present age of the baby is??

(Present year: 2013)

1. 1 year
2. **2 years**
3. 3 years
4. 4 years

Total age of 5 members, 3 years ago = (17 x 5) years = 85 years

Total age of 5 members now = (85 + 3 x 5) years = 100 years

Total age of 6 members now = (17 x 6) years = 102 years

Age of the baby = (102 – 100) years = 2 years.

1. 6 students are to be divided into two teams X and Y of 10 and 6 students. The average percent marks obtained by the students of team X is 75 and the average percent marks of all the 16 students is 76. What are the average percent marks of students of team Y?
2. [77 1/3](javascript:;)
3. [**77 2/3**](javascript:;)
4. [75 1/3](javascript:;)
5. [75 2/3](javascript:;)

Average = [(76 x 16) - (75 x 10)] / 6

=(1216 – 750) / 6

= 233/3

= 77 2/3

1. A finance company claims to be lending money at the simple interest, but it includes the interest every six months for calculating the principal. If it is charging an interest of 10%, the effective rate of interest becomes:
2. 10.75%
3. **10.25%**
4. 10.50%
5. 10.00%

Let the sum be Rs. 100. Then,

S.I. for first 6 months = Rs.[(100 x 10 x 1)/( 100 x 2)] =Rs.5

S.I. for last 6 months = Rs.[(105 x 10 x 1) / (100 x 2)]=Rs.5.25

So, amount at the end of 1 year = Rs.(100 + 5 + 5.25) = Rs.110.25.

Effective rate = (110.25 - 100) = 10.25%.

1. Anderson invests a certain sum of money at 6% per annum simple interest and another sum at 7% per annum simple interest. His income from interest after 2 years was $354. 1/4th of the first sum is equal to 1/5th of the second sum. The total sum invested was:
2. $2900
3. $2800
4. **$2700**
5. $2600

Let the sums be A and b.

[(Ax6x2)/100 + (Bx7x2)/100] =354 or 6A + 7B = 17700….(i)

Also, A/4= B/5 or 5A-4B = 0 …………(ii)

Solving(i) and (ii)

A=1200 B=1500

Total sum=$2700

1. Steve invested an amount of $12000 at the simple interest rate of 10% per annum and another amount at the simple interest rate of 20% per annum. The total interest earned at the end of one year on the total amount invested became 14% per annum. Find the total amount invested?
2. $21800
3. $20800
4. **$20000**
5. $21000

Here, P1 = $12000,

R1 = 10%,

P2 = ?,

R2 = 20%,

R = 14%

using the formula

R = [P1R1 + P2R2] / (P1 + P2)

We get, 14 =(12000 x 10 + P2 x 20) / (12000 + P2)

P2 = $8000

Total amount invested

= $(12000 + 8000)

= $20000

1. Sheldon invested certain amount in three different schemes Gold, Silver and Bronze with the rate of interest 10% p.a., 12% p.a. and 15% p.a. respectively. If the total interest accrued in one year was $3200 and the amount invested in Scheme Bronze was 150% of the amount invested in Scheme Gold and 240% of the amount invested in Scheme Silver, what was the amount invested in Scheme Silver?
2. $6000
3. **$5000**
4. $7000
5. $8000

Let *x, y and z* be the amounts invested in schemes Gold, Silver and Bronze respectively.

Then,[ (x x 10 x 1)/100] + [(y x 12 x 1)/100] + [(z x 15 x 1)/100]= 3200

*10x + 12y + 15z = 320000……………………………………….*1

Now, z = 240% of y = (12/5) y…………………………………2

And, z = 150% of x = (3/2)x

*x*=2/3 z=(2/3)x(12/5) y=(8/5)y…………3

From (i), (ii) and (iii), we have:

16y + 12y + 36y = 320000

y = 5000

Sum invested in Scheme Silver =$5000

1. Mark borrowed £5000 from Felix at simple interest. If Felix got £500 more than his capital after 5 years, then the rate of interest per annum is:
2. **2%**
3. 3%
4. 4%
5. 5%

Here, P = £5000, I = £500, T = 5 years.

R =(100 x I) / (P x T)

We have, rate of interest (R) =(100 x 500)/( 100 x 500) = 2% p.a.

1. Present ages of Samuel and Aston are in the ratio of 5 : 4 respectively. Three years hence, the ratio of their ages will become 11 : 9 respectively, What is Aston’s present age in years?
2. 22
3. **24**
4. 26
5. 28

Let the present ages of Samuel and Aston be 5x years and 4x years respectively

Then, (5X + 3) / (4X + 3) = 11/9

9 (5X + 3) = 11 (4X + 3)

X=6

Aston’s present age is 4x=4 x 6 =24

1. A Mother said to her daughter, "I was as old as you are at present at the time of your birth." If the mother's age is 38 years now, the daughter’s age five years back was:
2. 40
3. 19
4. **14**
5. 38

Let daughter’s present age be X years. Then, (38 – X) = X

2X = 38

X = 19

Daughter's age 5 years back = (19 - 5) years = 14 years.

1. An auditorium is of length 16m, breadth 14m & height 5m. Calculate the no of persons that can be accommodated in the auditorium, assuming 3.5m3 of air is required for each person?
2. 380
3. **320**
4. 240
5. 260

Volume of the auditorium

= length × breadth × height

= 16 × 14 × 5 = 1120 m3

Volume occupied my 1 man = 3.5 m3

3.5 m3of air occupied my 1 man

1120 m3of air occupied my (1/3.5) x 1120

= 320 men

=>number of men that can be accommodated = 320men

1. A cylindrical pipe open at both ends is made of metal. The internal diameter of the pipe is 11.2 cm and its length is 21 cm .The metal everywhere is 0.4 cm thick . Calculate the volume of the metal correct to 1 place of decimal?
2. 306.4
3. **306.2**
4. 406.4
5. 406.2

Internal diameter = 11.2 cm

Internal radius= 11.2/2 = 5.6 cm

Length of the tube = 21 cm

Volume of the internal cylinder π r 2 h

= 22x 5.6x5.6x21/7 =2069.76cm 2

External radius,

R = (5.6 + 0.4) cm = 6 cm

Vol of the external cylinder = πR2 h

=22x6x6x21/7=2376cm2

vol of the metal = Vol of the external diameter – Vol of the internal diameter

= (2376 – 2069.76) cm3

= 306.2 cm3

1. Floor tiles are sold in a shop at $48 per square meter. A building contractor employs a machine that polishes the tiles that damages 10% of the total number of tiles which cannot be used any more. Calculate the amount that needs to be paid by contractor to tile shop owner, if the room is of a square shape and has a perimeter of 400 meters?
2. $4,00,000
3. $5,00,000
4. $3,65,000
5. **$5,28,000**

Cost of tiling the floor is at $48 per square meter

Square shape room perimeter = 400 meters

So side of square room = 400 / 4 = 100 meters

Area of the room = 100 x 100 = 10000 sq. meters

Assume that the tiles are sold as square meter blocks. Then, the area of the room corresponds to 10000 numbers of tiles.

The contractor has to buy 10% more number of tiles than 10000 tile blocks to balance out the damage caused by polishing machine.

That is, he should buy 10000 X (110/100) = 11000 tile blocks

Cost of each tile block is $48

Total Cost for which tiles need to be bought = 48 x 11000 = $528000

1. You are given a currency, named Dharam, in three denominations: 1 Dharam, 10 Dharam and 50 Dharam. In how many ways can you pay a bill of 107 Dharam?
2. 16
3. 17
4. **18**
5. 19

Let the number of currency 1 Dharam, 10 Dharam and 50 Dharam be x, y and z respectively.  
x+10y+50z=107

Now the possible values of z could be 0, 1 and 2.

For z=0: x+10y=107

Number of integral pairs of values of x and y that satisfy the equation:  
x+10y=107 will be 11.

These values of x and y in that order are:  
(7,10);(17,9);(27,8)…(107,0)

For z=1: x+10y=57

Number of integral pairs of values of x and y that satisfy the equation:   
x+10y=57 will be 6.

These values of x and y in that order are:   
(7,5);(17,4);(27,3);(37,2);(47,1) and (57,0)

For z=2: x+10y=7

There is only one integer value of x and y that satisfies the equation:   
x+10y=7 in that order is (7,0)

Therefore total number of ways in which you can pay a bill of 107 Dharam:  
=11+6+1= 18

1. When an apple is dropped, the number of feet F that it falls is given by the formula

F = (½) gt2 where t is the time in seconds from the time it was dropped and g is 32.2.

If it takes 5 seconds for the apple to reach the ground, how many feet does it fall during the last 2 seconds?

1. **257.6**
2. 96.6
3. 160
4. 64.6

In 5 seconds it travels

(1/2) x 32.3 x 52 = 16.1 x25 = 402.5

In first 3 seconds it travels

(1/2) x 32.2 x 32 = 16.1 x 9 = 144.9

Hence in the last 2 seconds it travelled 402.5-144.9 = 257.6

1. The breadth of a rectangle is halved, while its length is tripled. What is the percentage change in area?
2. **50% increase**
3. 25% increase
4. 50% decrease
5. 75% increase

 Let original length = x and original breadth = y

Original area = xy.

New breadth = *3y*

New length = *x/2*

New area = *3y* x *x/2* = (3/2)*xy*

 Increase % =(1/2)*xy* x (1/*xy)*x 100% = 50%

1. The selling price of a book including the sale tax is £616. The rate of sale tax is 10%. If the shopkeeper has made a profit of 12%, the cost price of the book is:
2. £550
3. **£500**
4. £515
5. £600

110% of S.P. = 616

= S.P. = £ (616 x 100/110) = £560.

C.P. = £ (100/112 x 560)

= £500

1. Justin bought a dishwasher with 20% discount on the labeled price. Had he bought at it with 25% discount, he would have saved £500. At what price did he buy the dishwasher?
2. £[5000](javascript:;)
3. **£10000**
4. £12500
5. £18000

Let the labeled price be x Then,

80% of x) - (75% of x)= £500

5% of x =500

 x = (500 x 100/5) = £10000

1. A woman sells two cell phones for Rs.4000 each. Neither loosing nor gaining in the deal. If she sold one cell phone at a gain of 25%, the other cell phone sold at a loss of:
2. [**16 2/3 %**](javascript:;)
3. [32%](javascript:;)
4. [18 2/3%](javascript:;)
5. [25%](javascript:;)

Total S.P = Rs.8000 and Total C.P = Rs.8000

 S.P. of 1st cell phone = Rs.4000. Gain on it = 25%

C.P of 1st cell phone = Rs.(100/125 x 4000) = Rs.3200

 C.P of 2nd cell phone = Rs.(8000 – 3200) = Rs.4800.

S.P of 2nd cell phone = 4000.

Loss on 2nd cell phone = (800/4800 x 100) % = 16 2/3%

1. Samson purchased 20 dozen banana at Rs.48 per dozen. He sold 8 dozen at 10% profit and remaining 12 dozen with 20% profit. What is his profit percentage in the transaction?
2. 14
3. 15
4. **16**
5. 17

C.P of 20 dozen = Rs.(48 x 20) = Rs.960

C.P of 8 dozen = Rs. (48 x8) = Rs. 384.

C.P of 12 dozen =Rs. (960 – 384) = Rs. 576

Total S.P = Rs. (110/100 x 384 +120/100 x 576) = Rs.1113.60

Profit % = (153.60/960 x 100) % =16%

1. In an Arithmetic progression the 12th term is 61 and common difference is 5 then what is the series?
2. [3, 9, 11](javascript:;)
3. [4, 7, 11](javascript:;)
4. [5, 8, 11](javascript:;)
5. [**6, 11, 16**](javascript:;)

 61 = a + (12 - 1) 5

a = 6

Series 6, 11, 16

1. Vincent borrowed a certain sum from Watson at a certain rate of simple interest for 2 years. He lent this sum to Rashly at the same rate of interest compounded annually for the same period. At the end of two years, he received $4200 as compound interest but paid $4000 only as simple interest. Find the rate of interest.
2. 15%
3. **10%**
4. 20%
5. 25%

Suppose the sum borrowed = Rs X

Rate of interest = R%

Time = 2 years

4000= (2 x R x X)/100 Rx = 200000……(1)

X(1 +(R/100))2 =X + 4200

[XR2/10000] + [2RX/100] =4200

 20R + 4000 = 4200

R=10.