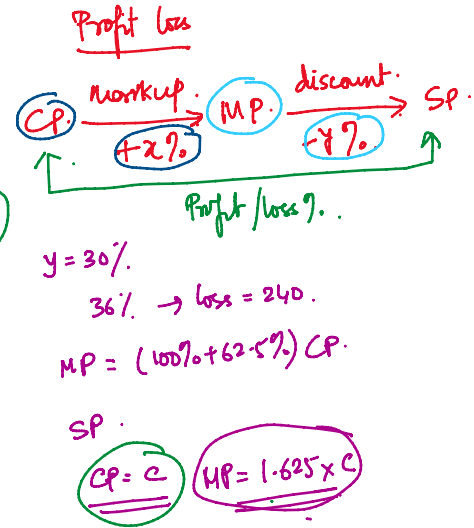An article was sold at 30% discount. If the same article was sold at 36% discount, then there would have loss of Rs. 240. If the article was marked 62.5% above the cost price, then find the original selling price of article.

- A Rs. 2940
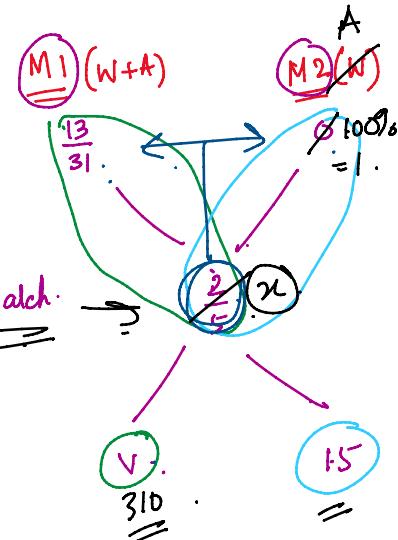- B Rs. 2520
- C Rs. 2800
- D Rs. 2100
- E None of these ✓

$SP = 70\% \times 1.625 \, C$

discount of 36%

Price becomes $= (100\% - 36\%) = 64\%$ MP

$SP = 0.7 \times 1.625 \times 6000$

$= 6825$

$SP = 64\% \times 1.625 \times C$

loss $= CP - SP$

$0.04 \, C = 240$

$C = 6000$

Profit loss

$CP \xrightarrow{\text{markup} +x\%} MP \xrightarrow{\text{discount} -y\%} SP$

Profit/loss %

$y = 30\%$

$36\% \to$ loss $= 240$.

$MP = (100\% + 62.5\%) \, CP$.

SP .

$CP = C$ $MP = 1.625 \times C$

W   A

A container contains water and alcohol in the ratio 18 : 13. A man mixed 15 liters of water in the container and then ratio of water to milk in the container becomes 3 : 2. What will be the ratio, if 15 liters of alcohol has been added?

alc.

- A 32 : 27
- B 36 : 29 ✓
- C 35 : 31
- D 33 : 26
- E None of these

$325x = 145$

$310 \left(x - \frac{13}{31} \right) = 15 (1 - x)$

$310x - 130 = 15 - 15x$

fraction of alchohol

$V \left(\frac{13}{31} - \frac{2}{5} \right) = 15 \left(\frac{2}{5} - 0 \right)$

fraction of alch.

$V \left(\frac{65 - 62}{155} \right) = \frac{15 \times 2}{5}$

$x = \frac{145}{325}$

$\frac{29}{65}$

$V = \frac{2 \times 155}{5} = 310$ Vol

$W : A = 36 : 29$

M 1 (W+A)   M 2 (W) A

$\frac{13}{31}$ $\emptyset$ 100% = 1.

$\frac{2}{5}$ x

V   15

310

The ratio of quantity of petrol to quantity of diesel in a container P was 24 : 7. 124 litres of the mixture is sold and 64 litres of another mixture containing quantity of petrol to quantity of diesel in the ratio 9 : 7 is mixed in container P. If the final ratio of quantity of petrol to quantity of diesel in the container P became 20 : 7, then what was the quantity of petrol present in the container P initially?
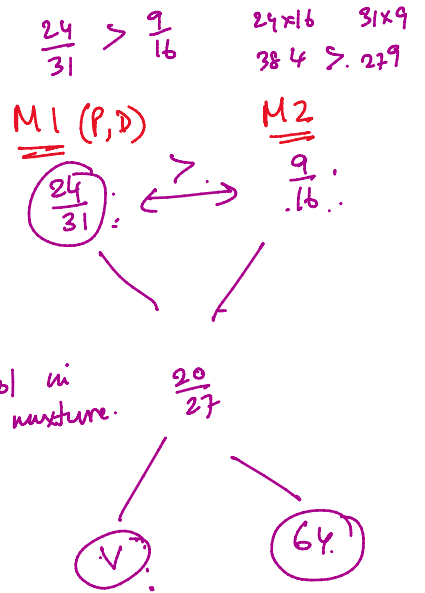
A) 360 litres

B) 240 litres

C) 480 litres

D) 384 litres

E) 288 litres

Handwritten work:

$$\frac{24}{31} > \frac{9}{16} \qquad 24\times16 \quad 31\times9$$
$$384 > 279$$

M1 (P,D)
$$\boxed{\frac{24}{31}} \quad \overset{>}{\longleftrightarrow} \quad \frac{9}{16}$$

M2
$$\frac{9}{16}$$

$$\sqrt{\left(\frac{24}{31} - \frac{20}{27}\right)} = 64\left(\frac{20}{27} - \frac{9}{16}\right) \qquad \text{fraction of Petrol}$$

$$V\left(\frac{648-620}{31\times27}\right) = 64\left(\frac{320-243}{27\times16}\right)$$

fraction of Petrol in final mixture.

$$V \times \frac{\cancel{28}}{31\times\cancel{27}} = \frac{\cancel{64}\times\overset{11}{\cancel{77}}}{\cancel{27}\times\cancel{16}}$$

$$V = 31\times11 = \boxed{341} \text{ Vol.}$$

$$\frac{20}{27}$$

$$\boxed{V} \qquad \boxed{64}$$

341 / 124 / 465

465 / 480

27 / 2½ / 108 / 54× / 648

Ranjeev bought a book at Rs. 4000. He marked it up by 'x'% above the cost price and then sold it at a discount of 10%. Raman also bought a book at Rs. 2500 and marked it up by 'x/2'% above cost price and then sold it at a discount of 20%. If the sum of the selling prices of the two books was Rs. 7440, then find the value of 'x'.

A) 40

B) 50

C) 30

D) 45

E) 35

Handwritten work:

2500
CP → MP → SP.
+x/2% . −20%.

$$SP = (100\% - 20\%)MP$$
$$= 80\%\left(100\% + \frac{x}{2}\%\right) \times 2500 \quad -②$$
$$= 0.8\left(1 + \frac{x}{200}\right) \times 2500$$
$$= 2000\left(1 + \frac{x}{200}\right) = \boxed{2000 + 10x}$$

7440
−5600
1840

46x = 1840.
x = 40.

3600 + 36x + 2500 + 10x = 7440.
5600 + 46x = 7440.

Ⓒ
$$CP \xrightarrow{\text{markup}} MP \xrightarrow{\text{disc.}} SP.$$
+x%   −10%.

$$MP = (100\% + x\%)C$$
$$SP = (100\% - 10\%)MP.$$
$$SP = 90\%(100\% + x\%)C \quad ①$$
$$= 90\%(100\% + x\%) \times 4000$$
$$= 0.9\left(1 + \frac{x}{100}\right) \times 4000$$
$$= 3600\left(1 + \frac{x}{100}\right)$$
$$= \boxed{3600 + 36x}$$
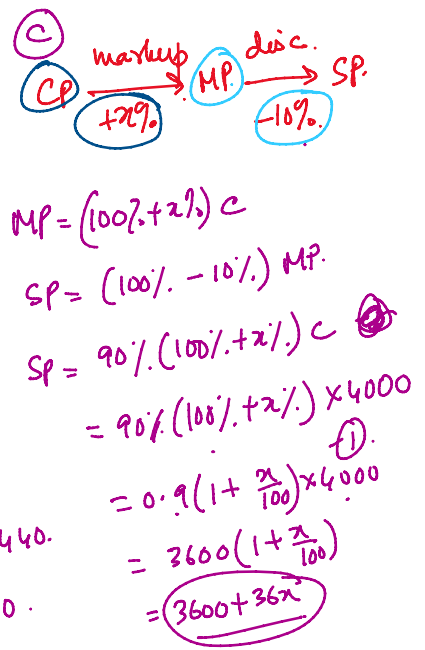
Pritam deposited Rs. 'x' in bank A at 30% compound interest and Rs. 'x + 600' in bank B at 36% simple interest for 3 years. If interest earned by him from bank A was Rs. 1107 more than interest earned by him from bank B, then find the value of 'x'.

A) 16000

B) 12000

C) 15000 ✓

D) 20000

E) 18000

Handwritten work:

P_1 R_1 P_2 R_2

$CI = x(1+0.3)^3 - x$

$SI = (x+600) \times 0.36 \times 3$

$x(1.3)^3 - x = 1.08(x+600) + 1107$

$2.197x - x = 1.08x + 648 + 1107$

$1.197x - 1.08x = 1755$

$0.117x = 1755$

$x = \dfrac{1755}{117} \times 1000$

1197
1080
117

1.3
×1.3
1.69

1.69
×1.3
2.197

$SI = \dfrac{PRT}{100}$ P = Principal   R = Rate   T = Time

$\dfrac{195}{1755}{117} = 15$

13

$A = P + SI$

$A = P\left(1+\dfrac{R}{100}\right)^T$

$\boxed{CI = A - P}$

The ratio of present age of Ankur to present age of Sanjeev is 3 : 11 while the ratio of present age of Sanjeev to present age of Reena is 5 : 4. If the average age after 7 years of all three will become 45 years , then find the present age of Reena.

A) 40 years

B) 28 years

C) 24 years

D) 44 years ✓

E) 48 years

Handwritten work:

    A   S   R

Present   15x   55x   44x

After 7 yrs. | 15x+7 + 55x+7 + 44x+7 |

$Avg = 45 = \dfrac{Sum}{3}$

$Sum = 45 \times 3 = 135$

$114x + 21 = 135$

$114x = 114$

$x = 1$

A   S   R.

$5 \times 3 : 11 \times 5$

$11 \times 5 : 4 \times 11$

15 : 55 : 44

A : S : R.

$A = 15x$
$S = 55x$
$R = 44x$

A shopkeeper bought an article for Rs. 2400. The shopkeeper earned profit of 20% if profit is calculated on the selling price. If the marked price of the article was Rs. 'x' more than the cost price of the article and the discount given was 25%, then find the value of 'x'.
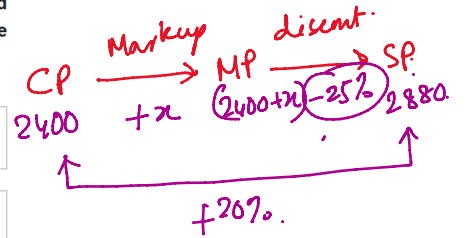
- A) 1200
- B) 1500
- C) 1800
- D) 1600
- E) 2000

Handwritten annotations:

$$SP = (100\% - 25\%) MP$$
$$= 75\% \times MP$$
$$= \frac{3}{4} \times (2400 + x)$$

Markup → discount

$CP \xrightarrow{Markup} MP \xrightarrow{discount} SP$

$2400 \quad +x \quad (2400+x)(-25\%) \quad 2880$

$+20\%$

$$SP = (100\% + 20\%) CP$$
$$= 1.2 \times 2400$$
$$= 2880$$

Deepak and Sanjay together started a business with investments of Rs. 16400 and Rs. 18200, respectively. After a year, Deepak increased his investment by 15% while Sanjay decreased his investment by 5%. If the profit at the end of two years was Rs. 84900, then find the share of Deepak?

- A) Rs. 42840
- B) Rs. 42312
- C) Rs. 42236
- D) Rs. 42752
- E) Rs. 42560

A bag contains 6 red, 4 black and 3 yellow balls. Salim picks 2 balls at random from the bag. What will be the probability that both balls are of same colour?

A $\dfrac{9}{13}$

B $\dfrac{8}{17}$

C $\dfrac{7}{12}$

D $\dfrac{5}{9}$

E $\dfrac{4}{13}$

The ratio of curved surface area of a cone and a cylinder is 13 : 10. Total surface area of the cylinder is 750 cm² and radius of the cone is 10 cm. If radius of cone is 2 times that of cylinder then find the volume of cone.(take π = 3)

A 2800 cm³

B 2480 cm³

C 2400 cm³

D 2700 cm³

E 2620 cm³

Sampark Kranti express leaves Station A at 8 : 00 PM and 2 hours later another train Shatabdi express leaves Station A. Both the trains reach Station B at 1 : 00 AM. After reaching Station B, both trains off to Station C and Shatabdi express takes 96 minutes less than Sampark Kranti express to reach Station C. If distance between Station C to Station B is 300 km then find the difference between speed of both trains?

A 40 km/h

B 50 km/h

C 60 km/h

D 30 km/h

E 80 km/h

An 8 member jury is to be selected from a group of 9 male and 7 females. In how many ways will the jury having at most 3 females and at least 4 males be selected?

A 6435 ways

B 6298 ways

C 6670 ways

D 7240 ways

E 6875 ways

Arvind alone can do a piece of work in 'x' days, while Bablu can do the same work in 'y' days. Bablu and Chandan together can complete the whole work in 8 days and Arvind and Bablu together complete the work in 4.8 days. If Chandan is 50% efficient than that of Bablu, then find the value of 'x'.

A   16

B   20

C   8

D   10

E   15

The sum of the present age of A and B is 55 years and that of C and D is 80 years. Five years ago, the ratio of A's age to C's age was 5: 8. Five years hence B's age becomes equal to that of A's present age. Two years hence, what will be the sum of the age of A, B, C and D?

A   142 years

B   143 years

C   156 years

D   138 years

E   None of these

Three friends A, B, and C entered into a business. The ratio of there respective investments was 4 : 5 : 6. At the end of 4 months from the starting A withdraws 25% of his initial investment but C puts 50% more of his initial investment. At the end of one year, B's share in total profit was Rs. 15000 then find the difference between A's share and C's share in the total profit?

A · Rs. 8400

B · Rs. 7800

C · Rs. 8100

D · Rs. 9000

E · None of these

The distance between Delhi and Patna is 588 km. Train P leaves from Delhi for Patna at speed of x km per hour and at the same time Train Q leaves from Patna for Delhi at speed of (x + 9) km per hour. At the end of 12 hours, they meet each other then find the speed of the train Q?

A · 23 km per hour

B · 25 km per hour

C · 20 km per hour

D · 27 km per hour

E · None of these

Pipes A and B together can fill a water tank in 18 hours, pipes B and C together can fill the same tank in 20 hours, and pipes A and C together can fill the same tank in 12 hours. If all the three pipes A, B, and C are opened together then they fill 51 litres of water per minute. Find the capacity of the tank (in litres)?

A 32400

B 34200

C 27000

D 30600

E None of these

To prepare Tea, Ranjita mixes water to milk in the ratio of 1 : 1. Initially, she had only 100 ml of pure milk and 5 litres of a separate solution of milk and water in which the quantity of milk was 30%. Find how much quantity from the separate solution be mixed with 100 ml of pure milk to get the desired ratio of milk and water to prepare tea.

A 25 ml

B 250 ml

C 35 ml

D 350 ml

E None of these

The marked price of an article is Rs. 4200. If a shopkeeper gives 10% discount on the marked price then he earns 40% profit. At what price should the shopkeeper sell the article if he wants to earn 25% profit?

- (A) Rs. 3275
- (B) Rs. 3325
- (C) Rs. 3450
- (D) Rs. 3375
- (E) None of these

In a village, out of the total population 40% people were employed and the rest were unemployed. At the end of 4 years, when the population of the village is increased by 20%, the number of employed people was same as before. By how much percentage has unemployment increased in the village?

- (A) 50%
- (B) 60%
- (C) 37.5%
- (D) 33.33%
- (E) None of these

From a group of 4 men, 5 women and 3 children, three persons go to a party. What is the probability that either all are men or all are women?

A $\dfrac{7}{110}$

B $\dfrac{14}{110}$

C $\dfrac{7}{220}$

D $\dfrac{5}{110}$

E None of these

A number is drawn at random from first 100 natural numbers. What is the probability that the number is not a prime number?

A $\dfrac{1}{2}$

B $\dfrac{1}{4}$

C $\dfrac{6}{25}$

D $\dfrac{3}{4}$

E None of these

When A and B work together then they take 4 hours to complete a piece of work. When B alone works at 75% of his efficiency then he takes 8 hours to complete half of the piece of work. Find the number of hours A alone will take to complete the piece of work if he works at 75% his efficiency?

A   8 hours

B   6 hours

C   9 hours

D   4.5 hours

E   None of these

A group of some boys met in a mango farm and pooled some mangoes in a bag such that each boy contributed exactly 4 mangoes more than the number of boys in the group. If each boy had contributed exactly 2 mangoes less than the number of boys in the group then the total number of mangoes would be 50% less than the first case. Find how many mangoes they would have pooled if each boy contributed exactly 2 mangoes more than the number of boys in the group?

A   48

B   24

C   120

D   80

E   None of these

The average monthly income of five earning members of a family was Rs. 12850. One member passes away then the employer started paying 25% of his monthly salary to the family. If the earning members of the family divided equally that money among themselves then after adding that amount with their monthly income, the average monthly income of remaining four members of the family become Rs. 9050. What was the share of each member?

A Rs. 9350

B Rs. 9680

C Rs. 2337.50

D Rs. 2420

E None of these

A merchant fixes the selling price of an article Rs. 1260 after adding 20% profit on the cost price. As sales were very low at this price, he decided to issue a gift card free of cost to every customer which will give 10% cashback of total shopping amount. If the cost of each card was Rs. 10 then how much profit the merchant made on each article after giving 10% cashback and adding the cost of gift card on that cashback?

A Rs. 94

B Rs. 74

C Rs. 84

D Rs. 104

E None of these