

2. The population of a city in the year 2016 is 8% more than the population of the same city in the year 2015. In July 2016, 12% of total population migrated to a different city and in the month of December 75% of them returned again in the city. If the population in the city in 2015 was 3 lakh then what was the population of the city in the beginning of 2017?

- A. 235710
- B. 342520
- C. 178870
- D. 314280
- E. 288450

2015 - 3 lakhs.
 2016 - $3 + 8\% \times 3 = 324000$.
 July 2016 $\rightarrow 324000 - 12\% \times 324000 = 285120$.
 Dec 2016 $285120 + 29160 = 314280$.

$\frac{3}{4} \times 38880 = 29160$
 38880
 $32400 + 3240 \times 2 = 32400 + 6480 = 38880$
 38880
 $75\% \times 38880$

4. A pipe fills a cubical tank at the rate of 72 m³ per minute in 24 minutes. If a cylindrical tank having height same as the side of a cubical tank and the curved surface area of the cylindrical tank is 1056 m², then find the difference between the volumes of cylindrical tank and cubical tank.

- A. 5242 m³
- B. 5664 m³
- C. 5568 m³
- D. 5420 m³
- E. 5380 m³



Vol of cubical tank = $72 \times 24 = 1728 \text{ m}^3$
 $a^3 = 1728$ $a = 12$
 $a^3 = 12^3$
 Curved surface area of a cylinder = $2\pi r h$
 $2 \times \frac{22}{7} \times r \times 12 = 1056$
 $r = \frac{1056 \times 7}{2 \times 22 \times 12} = 14$

$\frac{168}{44}$
 $\frac{672}{672}$
 $\frac{7392}{7392}$

Vol of the cylinder = $\pi r^2 h = \frac{22}{7} \times 14^2 \times 12 = 44 \times 168 = 7392$

48
 4
 $\text{area} = 1440 - 880 = 560 \text{ m}^2 = 560 \times 100^2 \text{ cm}^2$
 $\text{No of tiles} = \frac{560 \times 10000}{56 \times 84} = 1250 = \frac{560 \times 10000 \text{ cm}^2}{56 \times 84}$

8. 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 alcohol in the container becomes 3 : 2. What will be the ratio, if 15 liters of alcohol has been added?

A. 32 : 27

B. 36 : 29

C. 35 : 31

D. 33 : 26

E. None of these

$\text{Total vol} = x$
 $180 = \frac{18}{31}x$
 $+15$
 $\frac{18x+15}{31} : \frac{13x}{31} = \frac{3}{2}$
 $\frac{13x}{31} = 130$
 $13x = 4030$
 $x = 310$
 $18x + 465 = \frac{3}{2} \times 13x$
 $36x + 930 = 39x$
 $3x = 930$
 $x = 310$

9. 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

let initial vol = x
 $x = \frac{124 \times 31}{28} = 465$
 $P = \frac{9}{16} \times 64 = 36$
 $D = \frac{7}{16} \times 64 = 28$
 $\frac{24}{31}x - 60 = \frac{20}{7}$
 $\frac{168}{31}x - 420 = \frac{140x}{31}$
 $24x - 96$
 $+36$
 $\frac{24}{31}x - 60$
 $7x - 28$
 $+28$
 $\frac{7}{31}x$
 $P = \frac{24}{31} \times 124 = 96$
 $D = \frac{7}{31} \times 124 = 28$
 $P = \frac{24}{31} \times 465 = 360$

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

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?

A 32 : 27

B 36 : 29

C 35 : 31

D 33 : 26

E None of these

Three persons A, B, and C complete a piece of work in 6 days for which they are paid a sum of Rs. 480. If the efficiency of A, B and C are in ratio 4 : 5 : 7, then find the daily income of B?

- A Rs. 25
- B Rs. 30
- C Rs. 150
- D Rs. 20
- E None of these

$$\begin{matrix} A & B & C \\ 4x & 5x & 7x \end{matrix}$$

$$4x + 5x + 7x = 16x$$

$$\text{In 1 day}$$

$$\text{In 6 days} \rightarrow 16x \times 6 = 96x$$

$$96x = 480$$

$$x = 5$$

$$B = 5 \times 5 = 25$$

AB de Villiers smashes 86 runs against Australia in 16 balls. If he only scored in boundaries (fours and sixes) only, then find the maximum percent of runs he scored by hitting fours.

- A 23.25%
- B 26.4%
- C 74.5%
- D 28%

$$\frac{1000}{43} = 23.25\%$$

$$\frac{5 \times 4 = 20}{86} \times 100$$

$$\begin{aligned} \text{No of 4s} &= x \\ \text{No of 6s} &= y \\ 4x + 6y &= 86 \\ x + y &= 16 \\ 4x + 4y &= 64 \\ \hline 2y &= 22 \end{aligned}$$

- (D) 28%
- (E) None of these

43

~~20~~
→ × 100
~~86~~
43.

$2y = 22$
 $y = 11$
 $x = 5$

Average marks obtained in English by 17 girls of a class is 35. The marks obtained by them is arranged in ascending order form and in Arithmetic progression. If the marks obtained by the 2nd, 6th, 9th, 12th and 16th position are removed from the table, then find the new average of marks obtained by the remaining girls in English.

- (A) 33
- (B) 35
- (C) 37
- (D) Can't be determined
- (E) None of these

1st, 3rd, 4th, 5th, 7th, 1st → a
 8th, 10th, 11th, 13th, 2nd → a+d
 14th, 15th, 17th, 3rd → a+2d
 2nd → a+d, 4 → a+3d
 6th → a+5d, 17th → a+16d
 9th → a+8d
 12th → a+11d
 16th → a+15d

17a + 17 × 8d
 - (5a + 40d)

 12(a + 8d)

Avg = $\frac{12 \times 35}{12}$
 = 35

Total marks = 35 × 17
 = 595

Sum = $\frac{17}{2} [2a + (17-1)d]$
 = $\frac{17}{2} [2a + 16d]$
 595 = 17(a + 8d)
 a + 8d = 35
 = 12a + 96d
 = 12(a + 8d)

On a Big Billion day sale ,Google flagship mobile phone was available at a discount of 20% on Flipkart. The customers who are purchasing for the first time on Flipkart will get additional cashback of 10 % on the billing amount . Suraj being 1st time user of Flipkart purchases the mobile phone for Rs. 36000,find the actual cost price of the mobile phone.

A Rs. 50000

B Rs. 45000

C Rs. 52250

D Rs. 47250

E None of these

Cost of a pen , marker and sharpener is rupees 15, 18 and 5 respectively. To increase his sales the shopkeeper sells sets of 5 pens and 3 markers for Rs. 100. Find the amount paid by the customer if he buys 15 pens, 10 marker and 2 sharpeners.

A Rs. 378

B Rs. 356

C Rs. 328

D Rs. 367

E None of these

Rashmi and Pallavi can make a carpet in 3 days and 12 days more than the time taken if both of them worked together. Find the time in which Rashmi can make the carpet alone.

A 9 days

B 6 days

C 12 days

D 8 days

E None of these

A cruise was 100 km from the nearest shore when the captain discovered a leak which admits 5 tons of water every 10 minutes, 120 tons would suffice to sink the cruise. The captain came up with a temporary solution by fixing a pump which can throw 10 tons of water in an hour. Find the average sailing rate of the cruise that may just allow cruise to reach the nearest shore

A 14.28 km/hr

B 20 km/hr

C 16.67 km/hr

D 6 km/hr

E None of these

Incomes of John and Kelvin are in the ratio 4 : 7 and their spending are in the ratio 6 : 11. If John saves one third of his income, then what will be the ratio of their savings.

A 12 : 13

B 13 : 12

C 18 : 19

D 12 : 19

E None of these

A shopkeeper marked a product, 20% above the cost price and sold the product for Rs. 3888 by giving two successive discounts of 10% each. Find the cost price of the product and the loss percentage of the shopkeeper.

A 4200, 7.4%

B 4000, 2.8%

C 4100, 5.1%

D 4050, 4%

E None of these

Siraj and Hiten started a business with investment of Rs. 15000 and Rs. 18000, respectively. After one year, Siraj increased his investment by 10% while Hiten decreased his investment by 10%. At the end of two years, total profit made by the business is Rs. 13140. Find the share of profit of Hiten.

A Rs. 6220

B Rs. 6840

C Rs. 6280

D Rs. 7480

E Rs. 6530

A farmer mixes two varieties of rice of price Rs. 72 per kg and Rs. 48 per kg in the ratio of 1: 2. He sold the mixture for Rs. 4200 to earn a profit of 25%. Find the quantity of rice of cost Rs. 72 per kg in the mixture.

A 20 Kg

B 30 kg

C 40 kg

D 50 kg

E 60 kg

A man deposited 'x%' of his monthly salary which is Rs. 60000 at 13% simple interest. If the accumulated amount for the sum deposited after 3 years was Rs. 29190, then find the value of 'x'.

A 40

B 35

C 45

D 50

E None of these

Out of total students $\frac{100}{3}$ % are in hostel A and remaining are in hostel B. If 20 students from hostel B are shifted to hostel A, then total students in hostel A becomes 50% of total students. If 20 students from hostel A are shifted to hostel B, then the total students in hostel A becomes what per cent of total students?

A 26.34%

B 16.67%

C 12.75%

D 20.67%

E None of these

3 workers Peroola, Rahul and Prashant can complete a piece of work in 6 days. Peroola takes 15 days less than Rahul to complete the same work. Find in how many days will Prashant complete the whole work alone with 75% of his original efficiency, if Rahul can complete the work alone in 35 days?

A $\frac{560}{37}$ days

B $\frac{499}{36}$ days

C $\frac{361}{17}$ days

D $\frac{555}{43}$ days

E None of these

The present average age of a group of 60 athletes is 50% more than the average age of the 60 athletes 5 years ago. The average age of the group will become Y, if two new athletes of 22 year and 38 years join the group. Find the value of Y.

A 14.44

B 17.54

C 15.48

D 16

E None of these

Three friends A, B, and C started a business and invested in the ratio of 8: 6: 15. At the end of one year out of the total profit of Rs. 6000, A's share was Rs. 2000 which was Rs. 500 more than that of B's share. Find the ratio of time for which they had contributed their capitals?

A 1 : 1 : 2

B 5 : 5 : 3

C 3 : 3 : 2

D 6 : 6 : 5

E None of these

The ratio of length of each equal side to third side of an isosceles triangle is 5 : 6. If the area of the isosceles triangle is 108 sq. cm and the third side of the triangle is equal to the diameter of a circle. What is the area of the circle (in sq. cm)?

A 144π

B 36π

C 225π

D 81π

E None of these

Two motorboats A and B, start simultaneously from the two ends P and Q of a river in downstream and upstream respectively. The speed of the motorboat A in still water is 200% more than that of motorboat B. If the distance between P and Q is 120 Km and they meet each other after 5 hours then how long the motorboat A will take to travel 90 km in still water?

A 6 hours

B 5 hours

C 8 hours

D None of these

E Can't be determined

Tenali Ram purchased 150 chocolates for his 5 grandsons and distributed the chocolates in such a way that the number of chocolates received by each grandson is in arithmetic progression. The highest number of chocolates received by any one of them is 28 more than the lowest number of chocolates received by any one of them. What is the sum of highest number of chocolates received by any one of them and the lowest number of chocolates received by any one of them?

A 50

B 60

C 40

D 70

E None of these

Vicky invited some of his friends for a party. 20% of them came by car and 40% of the remaining came by Bike. The number of friends who came by bus is 50% more than that by car and if 36 friends came by auto then total how many friends came by Bike? (assume that all came by any one of the vehicles car, bike, bus or auto)

A 72

B 60

C 64

D 50

E None of these

A and B start swimming simultaneously towards each other from the point P and Q respectively. After 12 hours, they meet each other after that A takes 6 hours 40 minutes more to reach the point Q . What is the ratio of the speed of A in still water to that of the speed of stream if it is given that the direction of flow of the river is from point P to Q and in still water the ratio of the speed of A to that of B is 7 : 5?

A 7 : 5

B 35 : 6

C 49 : 5

D 42 : 5

E None of these