1. The population of a town was 160000 three years ago. If it had increased by 3%, 2.5% and 5% in the last three years, find its present population.

(A) 167366  (B) 177466  (C) 177366  (D) 177365

Answer: C

Solution: Given population are 160000
It has increased by 3%, 2.5% and 5% in the last three years
Hence the total population after 3 years is
\[160000 \times \left(1 + \frac{3}{100}\right) \times \left(1 + \frac{2.5}{100}\right) \times \left(1 + \frac{5}{100}\right) = 177366\]

2. The sides of a quadrangular field, taken in order are 26 m, 27 m, 7 m and 24 m respectively. The angle contained by the last two sides is a right angle. Find its area.

(A) 324 m²  (B) 238.59 m²  (C) 375.84 m²  (D) 384.69 m²

Answer: D

Solution: If the base of the quadrilateral is 24m and breadth is 7m
Area of a rectangular part of the quadrilateral = \(l \times b = 24 \times 7 = 168\) sq.m
Area of a triangular part of the quadrilateral = \(\frac{1}{2} \times b \times h = \frac{1}{2} \times 24 \times 19 = 228\) sq. m
Total area approximately = 384.69 sq.m

3. An alone can complete a work in 16 days and B alone in 12 days. Starting with A, they work on alternate days. The total work will be completed in ______________.

(A) 12 days  (B) 13 days  (C) 13\(\frac{3}{7}\) days  (D) 13\(\frac{3}{4}\) days

Answer: D

Solution: One day work of A + one day work by B = \(\frac{1}{16} + \frac{1}{12} = \frac{14}{96} = \frac{7}{48}\)
As they are doing work on alternate days, so work to be completed in \(96/7 = 13 + \frac{5}{7}\) &gt; 13 days
This shows that for 12 days they will work on alternate ways. Then A will work for 1 day and then B will for \(\frac{3}{4}\) days to Finish 1/16 parts left after 13 days.
So, total number of days = \(12 + 1 + \frac{3}{4} = 13 \frac{3}{4}\)

4. A triangular park in a city has dimensions 100 m × 90 m × 110 m. A contract is given to a company for planning grass in the park at the rate of ₹4,000 per hectare. Find the amount to be paid to the company.

(Take \(\sqrt{2} = 1.414\))

(A) ₹ 4532.90  (B) ₹4242  (C) ₹1696.80  (D) ₹1000

Answer: C
5. Eight people are planning to share equally the cost of a rental car. If one person withdraws from the
arrangement and the others share equally the entire rental of the car, then the share of each of the
remaining persons is increased by _________ of the original share.

(A) $\frac{1}{9}$  (B) $\frac{1}{8}$  (C) $\frac{1}{7}$  (D) $\frac{7}{8}$

**Answer:** C

**Solution:** Say suppose if the cost of the car is Rs 1 and then each one would get 1/8 eight,
Now one of them withdraws then it is increased by 1/7th of original share.

6. The taxi charges in a city comprise of a fixed charge, together with the charge of the distance covered. For a
journey of 16 km, the charges paid are Rs.156 and for a journey of 24 km, the charges paid are Rs.204.
What will a person have to pay for travelling a distance of 30 km?

(A) Rs.236  (B) Rs.240  (C) Rs.248  (D) Rs.252

**Answer:** B

**Solution:** Let the fixed charge be Rs x and the distance per km is Rs y
So, x + 16y = 156 -- -- -- -- -- -- -- (1)
And x + 24y = 204 -- -- -- -- -- -- -- (2)
Solving (1) and (2), we get x = Rs 60 and y = Rs 6
So, for 30 km the amount = 60 + 30 x 6 = Rs 240

7. The taxi fare in a city is 25 for first kilometer and 10.5 for next each subsequent kilometer. A traveler is
charged 109 as the fare. How many kilometers did he travel?

(A) 8 km  (B) 9 km  (C) 10 km  (D) None of these

**Answer:** B

**Solution:** In 1 km the amount charges by the taxi =Rs.25
Total fare paid by the traveler = Rs.109
Remaining subsequent charges of distances covered by the taxi = 109 - 25 = Rs.84
84/10.5 = 8 + 1(Distance covered in first one km) = 9 Km

8. A sum of ₹ 1550 is lent out into two parts, one at 8% and another one at 6%. If the total annual income is ₹
106, then find the money lent at each rate.

(A) ₹750, ₹800  (B) ₹600, ₹950  (C) ₹650, ₹900  (D) ₹850, ₹750

**Answer:** C

**Solution:** According to the question
8x/100 + (1550 – x) x6/100 = 106
This gives
2x = 10600 – 9300
x = 1300/2 = Rs650.

9. Reema bought x pens at ₹2.60 each and y greeting cards at 80 paisa each. If the pens cost ₹12 more than
the cards, then the given condition is represented by the equation _________.

(A) 13x – 4y = 6  (B) 13x – 4y = 60  (C) 260x – 8y = 100  (D) 260x – 8y = 12

**Answer:** B
Solution: Total pens = $x \times 2 \times 60 = 2.6x$
Total greeting cards = $Y \times 0.8 = 0.8Y$

\[2.6x = 0.8y + 12\]

Upon solving, we get \(2(1.3x - 0.4y) = 6\)
If we multiply both sides by 10 we get \(13x - 4y = 60\).

10. The cost price of an article A is ₹160 and selling price of another article B is ₹240. If the selling price of A will be equal to the cost price of B, then the profit after selling A is 20%. What is the profit on B?

(A) 16.66% (B) 50% (C) 25% (D) None of these

Answer: C
Solution: Profit on B = 25%

11. Savita has Rs.27 in the form of fifty paisa and twenty-five paisa coins. She has twice as many twenty-five paisa coins as she has 50 paisa coins. How many coins of each kind does she have?

(A) 27, 54 (B) 30, 60 (C) 25, 50 (D) 40, 80

Answer: A
Solution: Let the number of 50p coins be ‘x’
Then, the number of 25p coins = 2x
Hence the total valuation is \(\left(\frac{1}{2}\right)x + \left(\frac{1}{4}\right)2x = 27\)

OR,
\[ X = 27; \quad (50p \text{ coins}) \]
\[ 2x = 54; \quad (25p \text{ coins}) \]

12. Four runners started running the race in the same direction around a circular path of 7 km. Their speeds are 4 km/hr., 3 km/hr., and 9 km/hr. r and 3.5 km/hr. individually. If they have started their race at 6 o’clock in the morning, then at what time they will be at the starting point?

(A) 14 hours (B) 13 hours (C) 10 hours (D) 15 hours

Answer: A
Solution: First we will find the time to be taken to complete one lap for each.
For 1st,
The time taken to complete one lap = \(60 \times 7 \times 60/4 = 6300\) seconds
For 2nd,
The time taken to complete one lap = \(60 \times 7 \times 60/3 = 8400\) seconds
For 3rd,
The time taken to complete one lap = \(60 \times 7 \times 60/9 = 2800\) seconds
For 4th,
The time taken to complete one lap = \(60 \times 7 \times 60/3.5 = 7200\) seconds
Now, LCM of these \((6300, 8400, 2800, 7200) = 50400\) Seconds = 14 hours

13. If 6 years are subtracted from the present age of Gagan and the remainder is divided by 18, then the present age of his grandson Anup is obtained. If Anup is 2 years younger to Madan whose age is 5 years, then what is Gagan’s present age?

(A) 48 years (B) 60 years (C) 84 years (D) 96 years
14. A shopkeeper earns a profit of 12% on selling a book at 10% discount on the printed price. The ratio of the cost price and the printed price of the book are
(A) 45:56  (B) 50:61  (C) 99:125  (D) None of these

Answer: A
Solution: Let the CP be 100
Hence SP = 100+12% of 100 = 112
If the marked price be X, then 90% of X = 112
X = = Rs. then the required ratio = 100: = 900:1120 = 45:56.

15. Twenty women can do a work in sixteen days. Sixteen men can complete the same work in fifteen days. What is the ratio between the capacity of a man and a woman?
(A) 3:4  (B) 3:5  (C) 5:3  (D) None of these

Answer: D
Solution: 20:15 = 4:3

16. A trader purchases 70 kg of tea at Rs.15 per kg and 30 kg of tea at Rs.18.50 per kg. If the packing charges are 2 percent, then at what price he must sell the mixture of two to gain 15%?
(A) Rs.18.82 per kg  (B) Rs.18 per kg  (C) Rs.18.50 per kg  (D) Rs.17.80 per kg

Answer: A
Solution: Total price of procurement = 70 × 15 + 30 × 18.50 = 1050 + 555 = 1605
Including packing charge of 2%, CP = 1605 × (51/50) = 1637.10
Total weight of Tea = 70 + 30 = 100kg
Expected profit = 15%
Therefore, SP = 1637.10 × (23/20) × \(\frac{1}{100}\) = 18.87

17. A bookseller procures 40 books for 3200 and sells them at a profit equal to the selling price of 8 books. What is the selling price of one dozen books, if the price of each book is same?
(A) 720  (B) 960  (C) 1200  (D) 1440

Answer: C
Solution: CP of 40 books = Rs.3200
CP of one book = 3200/40 = Rs.80
SP of one book = 3200/8 = Rs.400
CP of one dozen books = 12 × 400 = Rs.4800
SP of one dozen books 4800 - (3200 + 400) = Rs.1200
18. A certain factory employed 600 men and 400 women and the average wage was ₹ 25.50 per day. If a woman got ₹ 5 less than a man, then what is the daily wage of a man and woman respectively?

(A) ₹25: ₹20  (B) ₹27.50: ₹22.50  (C) ₹30: ₹25  (D) ₹32.50: ₹27.50

**Answer: B**

**Solution:** Let us suppose the daily wage of a woman = Rs x
So, daily wage of a man is Rs x + 5
According to question
\[\frac{600(x + 5) + 400x}{1000} = 2550\]
This give x = Rs 22.50
So, daily wage of a woman = Rs 22.5 and daily wage of a man = Rs 27.5

19. Ajay has certain amount in his account. He gives half of it to his eldest son and one third of the remaining to his youngest son. What fraction of the original amount is left with him now?

(A) 1/3  (B) 2/3  (C) ¾  (D) 1/6

**Answer: A**

**Solution:** Let the Ajay has certain amount in his account = x
Eldest son gets = Youngest son gets = \(\frac{1}{2}(x - \frac{1}{3}x) = \frac{1}{2}( ) = \)
Amount left with him now = x - - - -
The fraction of original amount left with him now = 1/3

20. Average age of 6 sons of a family is 8 years. Average age of the sons together with their parents is 22 years. If the father is older than the mother by 8 years, then the age of the mother is

(A) 44 years  (B) 52 years  (C) 60 years  (D) 68 years

**Answer: D**

**Solution:** Total Age of Sons = 6×8 = 48
Total Age of Sons & Parents = 22×8 = 176
Total Age of parents = 176-48 = 128
Since father is older than the mother by 8 years, mother&#39;s age = (128-8)/2=120/2=60
Father#39; s age is 68
Mother#39; s age is 60

21. The average age of a family of 6 members 4 years ago was 25 years. Meanwhile a child was born in this family and still the average age of the whole family is same today. The present age of child is _______.

(A) 2 years  (B) 1 1 2years  (C) 1 year  (D) Data insufficient

**Answer: C**

**Solution:** Total present age of 6 persons excluding child = 150 + 24 = 174 years
Let the age of the child be x years
According to question
\[\frac{174 + x}{7} = 25\]
So, x = 1 year
22. The population of a city had increased successively at the rate of 6%, 4% and 2% per annum during last three years. If its present population is 1124448, then what was its population three years ago?
(A) 1000000 (B) 1050000 (C) 1080000 (D) 1100000

Answer: D
Solution: Let the population three years ago was x.
According to question \( x \times \frac{106}{100} \times \frac{104}{100} \times \frac{102}{100} = 1124448 \)
So, \( x = 1100000 \)

23. A man earns ₹20 on the first day and spends ₹15 on the next day. He again earns ₹20 on the third day and spends ₹15 on the fourth day. If he continues to save like this, then how soon will he have ₹60 in hand?
(A) On 17th day (B) On 27th day (C) On 30th day (D) On 24th day

Answer: A
Solution: The last day earning = Rs 20
So, the earning required before last day = 60 – 20 = Rs 40
Now, 40/5 = 8
So, total number of days = 8 x 2 + 1 = 17th days

24. In a call Centre at New Delhi, it is observed that it gets a call at an interval of every 10 minutes from California, at an interval of every 12 minutes from Texas, at an interval of 20 minutes from Washington DC and after every 25 minutes it gets a call from London. If in the early morning at 5:00 a.m. it has received the calls simultaneously from all the four destinations, then at what time again it will receive the calls at a time from all the places on the same day?
(A) 10:00 a.m. (B) 3:00 a.m. (C) 5:00 p.m. (D) Both A and B

Answer: A
Solution: Average time difference between New Delhi and the rest of the countries is around 5hrs. So it will receive call again from all the four places in the same day are 10:00 a.m.

25. A train travelling at 48 km/hr. completely crosses another train having half its length and travelling in opposite direction at 42 km/hr. in 12 seconds. It also passes a railway platform in 45 seconds. The length of the platform is _________.
(A) 400m (B) 450m (C) 560m (D) 600m

Answer: A
Solution: Let the length of the train traveling at 48 kmph be 2x meters. And length of the platform is y meters.
Relative speed of train = \((48+42)\)kmph
= \((90\times5/18)\) = 25 m/sec; and 48 kmph = \(48\times5/18\) = 40/3 m/sec.
According to the question, \((2x +x)/25 = 12\); or, \(3x = 12\times25 = 300\); or, \(x = 300/3 = 100m\)
Then, length of the train = \(2x = 100\times2 = 200m\).
200+y / \((40/3)\) = 45;
600+3y = 40×45; or, 3y = 1800-600 = 1200; or, \(y = 1200/3 = 400 m\).
Length of the platform = 400 m
26. 2 men and 3 women finish 25% of the work in 1 day, while 6 men and 14 women can finish the whole work in 5 days. In how many days will 20 women finish it?

(A) 20  (B) 25  (C) 24  (D) None of these

Answer: B
Solution: Bonus

27. The length of longest pole that can be placed on the floor of a room is 12 m and the length of longest pole that can be placed in the room is 15 m. The height of the room is

(A) 3 m  (B) 6 m  (C) 9 m  (D) 4 m

Answer: C
Solution: Let the height of the room be \( x \)
By Pythagoras theorem
\[ x^2 = (15)^2 - (12)^2 \]
\[ x = 9 \text{ m} \]
Thus the height of the room is 9 m

28. The price of rice is reduced by 2% per kg. How many kilograms of rice can now be bought for the money which was sufficient to buy 49 kg of rice earlier?

(A) 48 kg  (B) 49 kg  (C) 50 kg  (D) 51 kg

Answer: C
Solution: Let the initial price is Rs 100
New price = 100 - 2 = 98
As in Rs 98 one can buy 49 kg
So, in Rs 100 one can buy = \( \frac{49}{98} \times 100 = 50 \text{ kg} \)

29. M and N alone can do a work in 21 and 42 days respectively. In how many days they can complete the work, if they work on alternate days?

(A) 14  (B) 28  (C) 42  (D) 35

Answer: B
Solution: M’s one day work =
N’s one day work =
(M+N)’s 2 day’s work = = =
We can see that 14 \times =
M+N work for 14 days in pair of days that means for 28 days
M & N can complete the work, if they work on alternate days = 28 days.

30. A well with 10 m inside diameter is dug 14 m deep. Earth taken out of it is spread all around to a width of 5 m to form an embankment. The height of the embankment is ________.

(A) 2.46m  (B) 3.56m  (C) 4.66m  (D) 5.76m

Answer: C
Solution: Radius of the well = 5 m
Height of the well = 14 m
Width of embankment = 5 m
Radius of embankment = 5 + 5 = 10 m
Let h be the height of the embankment
So vol of the embankment = vol of the well
\[ \pi (10^2 - 5^2) \times h = \pi \times 5^2 \times 14 \]
\[ \pi \times 75 \times h = \pi \times 25 \times 14 \]
\[ h = \frac{25 \times 14}{75 \times \pi} \]
\[ h = 4.66 \text{ m} \]

31. Two pipes X and Y can fill a cistern in 24 min. and 32 min. respectively. If both the pipes are opened together, then after how much time Y should be closed so that the tank is full in 18 minutes?
(A) 6 mins (B) 8 mins (C) 10 mins (D) None of these

Answer: B
Solution: X can fill it in 24 min
So, in 18 minute X will fill = \( \frac{18}{24} = \frac{3}{4} \)
i.e., y should fill = \( \frac{1}{4} \)
Time for y = \( \frac{1}{4} \times 32 = 8 \text{ min} \)

32. A and B can do a piece of work in 10 days; B and C in 12 days; A, B and C in 8 days. In how many days A and C together can do the same work?
(A) 8 (B) 15 (C) 20 (D) can't be determined

Answer: B
Solution: In one day work done by A, B, C = \( \frac{1}{8} \)
Work done by A and B = \( \frac{1}{10} \)
Work done by B and C = \( \frac{1}{12} \)
Work done by A in one day= \( \frac{1}{8} - \frac{1}{12} = \frac{1}{24} \)
Work done by C in one day = \( \frac{1}{8} - \frac{1}{10} = \frac{1}{40} \)
Work done by A and C in one day= \( \frac{1}{24} + \frac{1}{40} = \frac{1}{15} \)
Thus the entire work done by A and C will be 15 days.

33. In a bag, there are coins of 25 paisa, 10 paisa and 5 paisa in the ratio of 1:2:3. If there are ₹30 in all, then how many 5 paisa coins are there?
(A) 50 (B) 100 (C) 150 (D) 200

Answer: C
Solution: Let us suppose the number of coins of 25 paisa = \( x \)
Number of coins of 10 paisa = \( 2x \)
And number of coins of 5 paisa = \( 3x \)
So, \( 25x + 10(2x) + 5(3x) = 3000 \) or \( x = 50 \)
So, \( 3x = 150 \).
34. 75 kg of wheat is being consumed in 30 days by 24 persons. How many persons will consume 50 kg of wheat in 40 days?
(A) 10   (B) 12   (C) 15   (D) 18

**Answer:** B

**Solution:** 75 kg of wheat is being consumed 30 days by 24 persons.

So, 75 kg of wheat is being consumed 1 day by 30 \times 24 persons

1kg of wheat being consumed in 1 days by \(\frac{30\times24}{75} = \frac{2\times24}{5}\) persons

1kg of wheat being consumed in 40 days by \(\frac{2\times24}{5}\times40 = \frac{24}{5}\times20 = \frac{6}{5}\times5\) persons

50 kg of wheat being consumed in 40 days by \(\frac{6\times50}{5\times5} = \frac{6\times2}{5}\) = 12 persons.

[2015]

35. In a mixture of 60 liters, the ratio of milk and water is 2:1. If this ratio is to be 1:2, then the quantity of water to be further added is ___________.
(A) 20 liters   (B) liters   (C) 40 liters   (D) 60 liters

**Answer:** D

**Solution:** Quantity of Milk = 60 \times (2/3) = 40 liters

Quantity of water = 60 - 40 = 20 liters

As per question we need to add water to get quantity 2:1

\[ \Rightarrow \frac{40}{(20+x)} = \frac{1}{2} \]

\[ \Rightarrow 20 + x = 80 \]

\[ \Rightarrow x = 60 \text{ liters} \]

[2016]

36. Suresh travelled 1200 km by air which formed (2/5) of his trip. One third of the whole trip, he travelled by car and the rest of the journey he performed by train. Find the distance travelled by train. Also, find the speed of the train if the time taken for the train to travel the whole distance is 8hrs.

(A) 1600 km, 350 km/hr.   (B) 800 km, 375 km/hr.
(C) 1800 km, 300 km/hr.   (D) 480 km, 380 km/hr.

**Answer:** B

**Solution:** \(\frac{2}{5}\) of total travel = 1200

So, total distance travelled = 3000

Now = 3000 – 1200 – 1000 = 800 km travelled by car.

[2012]

37. There are four bells. They ring after every one minute, two and half minutes, 50 seconds and 5 seconds respectively. If all the four bells rang last time together at 8:20 p.m., then at what time will they all next ring simultaneously?

(A) 8:23 p.m.   (B) 8:24 p.m.   (C) 8:25 p.m.   (D) 8:26 p.m.

**Answer:** C

**Solution:** The HCF of 60 seconds, 150 seconds, 50 seconds, 5 seconds is 300 seconds.

That is HCF = \(\frac{300}{60} = 5\) minutes

So, the bells will ring together at = 8:25 pm (8:20 + 00:05)

[2013]
38. A man, a woman and a boy can complete a job in 3, 4 and 12 days respectively. How many boys must assist 1 man and 1 woman to complete the job in \(\frac{1}{4}\) of a day?

(A) 1  
(B) 4  
(C) 19  
(D) 41

**Answer:** D  
**Solution:** One day work for a  
Man = \(\frac{1}{3}\)  
Woman = \(\frac{1}{4}\)  
Boy = \(\frac{1}{12}\)  
Now, one man and one woman work in \(\frac{1}{4}\) days = \(\frac{1}{12} + \frac{1}{16}\) = \(\frac{7}{48}\)  
That is \(1 - \frac{7}{48} = \frac{41}{48}\) parts of work should be done by the assisting boys.  
\(\frac{1}{12} \times \frac{1}{4}\) (number of boys) = \(\frac{41}{48}\)  
So, 41 boys required. [2014]

39. A car travelling with \(\frac{5}{7}\) of its usual speed covers 42 km in 1 hour 40 mins 48 secs. What is the usual speed of the car?

(A) 17\(\frac{5}{7}\) km/hr.  
(B) 25 km/hr.  
(C) 30 km/hr.  
(D) 37.5 km/hr.

**Answer:** D  
**Solution:** Let usual speed of car = \(x\)  
Speed = Distance/time  
\(\frac{5x}{7} = 45/1\text{hr 40min 48sec}\)  
\(\frac{5x}{7} = 45 + 40 + 48\times\frac{1}{3600}\)  
\(\frac{5x}{7} = 45 + \frac{40}{60} + \frac{48}{3600}\)  
\(\frac{5x}{7} = 45 + \frac{2400}{3600} + \frac{48}{3600}\)  
\(\frac{5x}{7} = 45 + \frac{6048}{3600}\)  
\(\frac{5x}{7} = \frac{45\times3600 + 6048}{3600}\)  
\(x = \frac{37.5}{1}\)  
\[\text{[2015]}\]

40. The fluid contained in a bucket can fill four large bottles or seven small bottles. A full large bottle is used to fill an empty small bottle. What fraction of the fluid is left over in the large bottle when the small one is full?

(A) \(\frac{2}{7}\)  
(B) \(\frac{3}{7}\)  
(C) \(\frac{4}{7}\)  
(D) \(\frac{5}{7}\)

**Answer:** B  
**Solution:** Let the capacity of the bucket be \(x\) liters. Then,  
Capacity of 1 large bottle = \(\frac{x}{4}\); Capacity of 1 small bottle = \(\frac{x}{7}\)  
Fluid left in large bottle = \(\left(\frac{x}{4} - \frac{x}{7}\right) = \frac{3x}{28}\)  
\(\therefore\) required fraction = \(\frac{\frac{3x}{28}}{\frac{x}{4}} = \left(\frac{3x}{28} \times \frac{4}{x}\right) = \frac{3}{7}\)  
\[\text{[2016]}\]

41. Three lightships flash simultaneously at 6:00 a.m. The first lightship flashes every 12 seconds, the second lightship every 30 seconds and the third lightship every 66 seconds. At what time will the three lightships next flash together?

(A) 6:09 a.m.  
(B) 6:10 a.m.  
(C) 6:11 a.m.  
(D) 6:12 a.m.

**Answer:** C
Solution: Since, LCM of 12, 30 and 66 is 660, Hence, all the three lightships will flash together after 660 seconds. 
Since, 60 seconds = 1 minute 
Therefore, 660 seconds = 11 minutes 
So, the time would be 6.11 am

42. The dimensions of a photograph are 4 cm and 1.8cms. If the breadth of the enlarged photo is 4.5 cm and it was enlarged proportionally then what is the new length of new photograph? 
(A) 6 cm 
(B) 5.4 cm 
(C) 10 cm 
(D) 9 cm

Answer: C
Solution: Length of the enlarge photograph = (4.5/1.8) × 4 = 10 cm

43. The average age of 15 students of a class is 15 years. Out of these, the average age of 5 students is 14 years and that of the other 9 students is 16 years. The age of the 15th student is ____________.
(A) 11 years 
(B) 14 years 
(C) 15 years 
(D) 15\frac{2}{7} years

Answer: A
Solution: The age of 15th student = \(\frac{15 \times 15 - 5 \times 14 - 9 \times 16}{11} = 225 - 70 - 144 = 11\) years

44. Roma took a loan of ₹ 16,000 against her insurance policy at the rate of \(12\frac{1}{2}\%\) per annum. Calculate the total compound interest that will be paid by Roma after 3 years. 
(A) ₹ 6781.25 
(B) ₹6925.30 
(C) ₹4296.82 
(D) ₹3579.71

Answer: A

45. A money lender borrows money at 4% p. A and pays interest at the end of the year. He lends it at 6% P A compounded half-yearly and receives the interest at the end of the year. Thus, he gains ₹104.50 a year. The amount of money he borrows, is 
(A) ₹4500 
(B) ₹5000 
(C) ₹5500 
(D) ₹6000

Answer: B
Solution: Let he borrowed Rs x 
Using formula of CI & SI we get,
Amount he has to return = \(100\times x\)
Amount he will get = \((1 + \frac{3}{100})^2 = \frac{10609}{10000}\times x\)
His gain = \(\frac{10609}{10000}x - \frac{104}{100}x = 104.50\)
Solving above equation, we get x = Rs.5000

46. A fruit seller has 24 kg of apples. He sells a part of these at a gain of 20% and the balance at a loss of 5%. If on the whole he earns a profit of 10%, the amount of apples sold at a loss is _______.
(A) 4.6 kg 
(B) 6 kg 
(C) 9.6 kg 
(D) 11.4 kg
Answer: C
Solution: Let the amount of apples to sell at gain is y kg.
According to question
120\(\frac{y}{100}\) + (24 – y) x 95/100 = 24 x 110/100
So, y = 14.4 kg
That is 14.4 kg
So, the amount sold at loss = 24 – 14.4 = 9.6 kg

47. The price of a car depreciates in the first year by 25%, in the second year by 20%, in the third year by 15% and so on. The final price of the car after 3 years, if the present cost of the car is 10,00,000 is
(A) 7,80,000 (B) 5,10,000 (C) 6,90,000 (D) 1,70,000

Answer: B
Solution: =10,00,000 × \(\left(\frac{1}{1-\frac{25}{100}}\right) × \left(\frac{1-20}{100}\right) × \left(1-\frac{15}{100}\right)\]
= 10,00,000 × \(\frac{75}{100} × \frac{80}{100} × \frac{85}{100}\)
= 10,00,000 x 75/100 x 80/100 x 85/100
= 75 × 80 × 85
= Rs.5,10,000

48. Village X has a population of 68000, which is decreasing at the rate of 1200 per year. Village Y has a population of 42000, which is increasing at the rate of 800 per year. In how many years will the population of the two villages be equal?
(A) 12 (B) 13 (C) 14 (D) 15

Answer: B
Solution: Let us suppose in 'n' years population will be equal.
68000 – 1200 n = 42000 + 800n
So, 2000 n = 26000 or n = 13

49. Cubical boxes of volume 15625 cm\(^3\) each are put in a cubical store of side 2.5 m.
(i) How many such boxes can be put in the store?
(ii) What are the dimensions of the box?

<table>
<thead>
<tr>
<th>(i)</th>
<th>(ii)</th>
</tr>
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<tbody>
<tr>
<td>(A)</td>
<td>1250</td>
</tr>
<tr>
<td>(B)</td>
<td>1000</td>
</tr>
<tr>
<td>(C)</td>
<td>1250</td>
</tr>
<tr>
<td>(D)</td>
<td>1000</td>
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</tbody>
</table>

Answer: D
Solution: (i) V=15625cm \(^3\)
Side = 2.5m = 2.5×100cm=250cm
Volume of cubical store = side \(^3\) = (250) \(^3\) = 15625000 cm \(^3\)
Number of boxes store contain = = = 1000 cm \(^3\)
(ii) Dimensions of the box = 15625 cm \(^3\)
Side \(^3\) = 15625 cm \(^3\) upon solving we get
Side = 25 cm.
50. After spending 40% in machinery, 25% in building, 15% in raw material and 5% on furniture, Harilal had a balance of ₹ 52200. The money with him was ______.

(A) ₹260000  (B) ₹289000  (C) ₹348000  (D) ₹556000

**Answer:** C

**Solution:** Let the total money with industry owner was Rs \( x \)

\[
[100-(40+25+15+5)]\% \text{ of } x = 52200
\]

15\% of \( x \) = 52200

\[X = \frac{5220000}{15}\]

\[X = 348000\]

The total money with industry owner was Rs 348000.