1). In Saran's opinion, his weight is greater than 65 kg but less than 72 kg. His brother does not agree with Saran and he thinks that Saran's weight is greater than 60 kg but less than 70 kg. His mother's view is that his weight cannot be greater than 68 kg. If all are them are correct in their estimation, what is the average of different probable weights of Saran?
   a) 70 kg  
   b) 69 kg  
   c) 61 kg  
   d) 67 kg  
   e) None of these

2). Bhaskar and Chandan together can do a piece of work in a certain number of days. Aashish can do the same piece of work in equal number of days. If Aashish and Bhaskar together can do the same piece of work in 15 days and Chandan can do the same piece of work in 24 days, then Bhaskar alone can do the same piece of work in how many days?
   a) 65 days  
   b) 80 days  
   c) 55 days  
   d) 45 days  
   e) 60 days

3). Parag has three kids: two boys and a girl. The birth dates of all the 3 kids are the same but the birth years differ from each other. The girl's age today is more than the sum of the two boys present ages. However, a year from now, the sum of the two boys ages will be equal to the girl's age. What will be the difference between the girl's age and the two boys combined ages 3 years from now?
   a) 4  
   b) 1  
   c) 3  
   d) 2  
   e) None of these

4). A can complete a piece of work in 8 days while B can complete the same work in 12 days. They work together for 3 days. Then A quits the work. In how many days will B now be able to finish the remaining work?
   a) 3 days  
   b) 5.2 days  
   c) 4.5 days  
   d) 2.4 days  
   e) 3.4 days

5). In a 100m race, Kranthi beats Shakthi by 10m and Shakthi beats Bhakthi by 5s. What is the speed of Kranthi (in m/s) if it is known that Kranthi runs twice as fast as Bhakthi?
   a) 18.0  
   b) 18.2  
   c) 17.7  
   d) 16.2  
   e) 16.6
6. A, B and C can do a work in 16 days, 12 4/5 days and 32 days respectively. They started the work together but A left after 4 days. B left the work 3 days before the completion of the work. In how many days the work was completed?
   a) 5 days
   b) 7 days
   c) 12 days
   d) 10 days
   e) 9 days

7. Distance between A and B is 112 km. Arun and Varun started walking towards each other from A and B respectively in a straight route. Arun walked at a speed of 8 km/hr while Varun walked at varying speed. His speed was 5 km/hr during 1st hour, 6 km/hr during 2nd hour, 7 km/hr during 3rd hour and so on. At what time they will meet each other?
   a) 8 hours
   b) 6 hours
   c) 7.5 hours
   d) 10 hours
   e) None of these

8. The digit in the units place of a two-digit number is equal to the digit in the tens place of one-third of that number and the digit in the tens place of the original number is 2 less than the digit in the units place of one-third of the number. If the sum of the digits of the original number is 6, then what is the number?
   a) 15
   b) 24
   c) 33
   d) 42
   e) 51

9. An aeroplane goes from city A to city B and then returns to city A with a 50% increase in speed. If it travels a total distance of 2400 kms in 5 hrs, then what is the absolute difference in the speeds between the forward and return journeys?
   a) 240
   b) 200
   c) 480
   d) 360
   e) 280

10. A boy takes 15 more hours than a man to complete a work. The boy worked for 18 hours and then the man replaced him and worked for 6 hours. Thus 3/5th of the work was completed. In how much time, will the work be completed considering that the man continues to work?
    a) 30 hours
    b) 42 hours
    c) 36 hours
    d) 24 hours
    e) None of the above

11. Two trains are running on parallel tracks. The slower train is moving at 18 km/hr. The faster train passes a man sitting in the slower train in 52 seconds. Find the time taken by the faster train to overtake the slower one if the lengths of the slower and the faster trains are 100 m and 130 m respectively.
12. P, Q and R started a business with capitals of Rs.10000, Rs.12000 and Rs.15000 respectively. At the end of the year, the share of R in the profit is Rs.3000. What is the difference between the share of Q and P in the profit?
   a) Rs.700
   b) Rs.600
   c) Rs.500
   d) Rs.400
   e) None of these

13. Adam Goldberg and Barry Goldberg start walking around a circular park of radius 105 meters. They start at the same point. Adam Goldberg goes clockwise at 15 m/s while Barry Goldberg goes anti-clockwise at 12 m/s. How many times will they cross each other at the starting point if they walk for 1 hour and 50 minutes?
   a) 25
   b) 30
   c) 35
   d) 40
   e) 45

14. A shopkeeper bought 150 calculators at the rate of Rs. 250 per calculator. He spent Rs. 2500 on transportation and packing. If the marked price of calculator is Rs.320 per calculator and the shopkeeper gives a discount of 5 % on the marked price then what will be the percentage profit gained by the shopkeeper?
   a) 14%
   b) 16%
   c) 20%
   d) 15%
   e) None of these

15. A and B always work on alternate days, but none of them work on Saturday and Sunday. Working alone A and B can finish the work in 20 days and 30 days respectively. If the work was started by A on Monday then on which day work will be finished?
   a) Tuesday
   b) Monday
   c) Wednesday
   d) Friday
   e) Thursday

16. In an Olympics game, if each of the 1000 participants is given an identity card, and the cards were numbered with consecutive natural numbers starting from 1 to 1000, then how many of the cards will have numbers such that the digit 6 does not occur more than once?
   a) 243
   b) 87
17. Two children visit a park to play in the same week. Both the two children are aware that the park remains closed on Monday and Sunday. Find the probability that both will visit the park on the same day.
   a) 4/5 
   b) 4/7 
   c) 1/7 
   d) 1/5 
   e) None of these

18. The ratio of the age of a man and his wife is 4 : 3. After 4 years, this ratio will become 9 : 7. At the time of the marriage the ratio of their ages was 7 : 5 then how many years ago they got married?
   a) 10 years 
   b) 4 years 
   c) 6 years 
   d) 8 years 
   e) 12 years

19. A, B and C started a business by investing Rs. 40500, Rs. 45000 and Rs. 60000 respectively. After 6 months C withdrew Rs. 15000 while A invested Rs. 4500 more. In annual profit of Rs. 56100, the share of C will exceed that of A by
   a) Rs. 900 
   b) Rs. 1100 
   c) Rs. 3000 
   d) Rs. 3900 
   e) None of the Above

20. A person sells his laptop at a profit of 3 1/3% and his mobile at a loss of 6 2/3% but on the whole he loses Rs. 215. On the other hand if he sells the laptop at a loss of 6 2/3 % and the mobile at a profit of 3 1/3% he incurs a loss of Rs. 830. Find the cost price of the mobile.
   a) Rs. 18750 
   b) Rs. 12600 
   c) Rs. 13600 
   d) Rs. 14600 
   e) None of these

21. 14 men can do a work in 18 days ,15 women can do a work in 24 days. If 14 men work for first 3 days and 10 women, work after that for 3 days, find the part of work left after that?
   a) 3/4 
   b) 1/4 
   c) 1/2 
   d) 1/6 
   e) 1/5

22. Perimeter of a rectangle is x and circumference of a circle is 8 more than the perimeter of the rectangle. Ratio of radius of circle and length of the rectangle is 1 : 2 and ratio of length and breadth of rectangle is 7 : 3. Find the length of the rectangle?
   a) 14
b) 21  
c) 28  
d) 35  
e) 7

23). Two trains crosses each other in 14 seconds when they are moving in opposite direction, and when they are moving in same direction, they crosses each other in 3 minute 2 seconds. Find the speed of the faster train by what percent more than the speed of the slower train?

a) 16.67%  
b) 17.33%  
c) 16.33%  
d) 17.67%  
e) 18.33%

24). Bhaskar and Chandan together can do a piece of work in a certain number of days. Aashish can do the same piece of work in equal number of days. If Aashish and Bhaskar together Can do the same piece of work in 15 days and Chandan can do the same piece of work in 24 days, then Bhaskar alone can do the same piece of work in how many days?

a) 65 days  
b) 80 days  
c) 55 days  
d) 45 days  
e) 60 days

25). The monthly expenses of P and Q are in the ratio 5 : 6, their incomes are in the ratio 4 : 5. If 'P' saves Rs.50 per month and 'Q' saves Rs.75 per month, what are their respective incomes?

a) Rs.300 and Rs.375  
b) Rs.240 and Rs.300  
c) Rs.320 and Rs.475  
d) Rs.425 and Rs.525  
e) None of these

26). Pari and David have together three times what David and Farhath have, while Pari, David, Farhath together have forty two rupees more than that of Pari. If David has 5 times that of Farhath, then Pari has?

a) Rs 60  
b) Rs 91  
c) Rs 77  
d) Rs 49  
e) Rs. 85

27). The total marks obtained by Aravind in Science and Economics are 180. If the difference between his marks in Science and Economics subjects is 10, then the ratio between his marks in Science and Economics is....

a) 7 : 18  
b) 8 : 17  
c) 9 : 18  
d) 19 : 7  
e) None of these
28). The sum of three consecutive odd numbers and three consecutive even numbers together is 231. Also, the smallest odd number is 11 less than the smallest even number. What is the sum of the largest odd number and the largest even number?
   a) 82
   b) 83
   c) 74
   d) Cannot be determined
   e) None of these

29). Aashi had Rs. 20,000 with her out of this money she lent some money to Anshul for 4 years at 20% p.a. simple interest. She lent the remaining money to Rajat for an equal number of years at the rate of 24% p.a. After 4 years, Aashi found that Anshul had given her Rs. 864 more as interest as compared to Rajat. The amount of money which Aashi had lent to Rajat must be.
   a) Rs. 10,600
   b) Rs. 11,400
   c) Rs. 8600
   d) Rs. 10,400
   e) Rs. 9600

30). A 280-m-long train takes 20 sec to cross a person who is going in the same direction with the speed of 6 km/h. After crossing that person, the train can reach next station in 45 min. How long will that person take to reach the station after being crossed by train?
   a) 7 hr 3 min
   b) 6 hr 3 min
   c) 7 hr 30 min
   d) 7 hr 50 min
   e) 6 hr 30 min

31). The average weight of four persons P, Q, R and S is 84 kg. The fifth person T is included and the average weight decreases by 5 kg. P is replaced by U. The weight of U is 4 kg more than T. Average weight decreases because of the replacement of P and now the average weight is 80 kg. Find the weight of P.
   a) 57 kg
   b) 54 kg
   c) 56 kg
   d) 60 kg
   e) 58 kg

32). In 180 litres of mixtures of milk and water, water is only 32%. The milkman sold 50 litres of this mixture and then he added 35 litres of pure milk and 15 litres of pure water in the remaining mixture. What is the percentage of water in the final mixture?
   a) 29.35%
   b) 31.44%
   c) 24.57%
   d) 27.74%
   e) 26.57%

33). The expenses of a shop consist of two parts. One part varies with the number of inmates while the other is constant. When the number of inmates is 300 and 450, the expenses are respectively Rs. 2300 and Rs. 2600. Then, the expenses for 500 inmates are:
34). Women together start a journey in the same direction. They travel 24 and 36 km per day respectively. After travelling of 6 days the man at 24 km per day doubles his speed and both of them finish the journey in the same time. Find the number of days taken by them to reach the destination.
   a) 10 days  
   b) 6 days  
   c) 8 days  
   d) 14 days  
   e) 12 days

35). The income of Roshan and Surbhi are in the ratio 9 : 4 and their ratio of expenditure is 7 : 3. If each saves Rs. 5000, what is the sum of their expenditure?
   a) Rs. 215000  
   b) Rs. 225000  
   c) Rs. 250000  
   d) Rs. 245000  
   e) Rs. 275000

36). The distance between the two stations Chennai and Bangalore is 400 km. A train starts at 5 pm from Chennai towards Bangalore at an average speed of 50 km/hr. Another train starts from Bangalore at 5.15 pm and moves towards Chennai at an average speed of 80 km/hr. How far from Chennai will they meet and at what time?
   a) A)161km, 9pm  
   b) B)120km,7.13pm  
   c) c)171km,8.13pm  
   d) d)148.33km,8.13pm  
   e) E) None of these

37). The ratio of the ages of Mala and Kala 10 years ago was 1:5. The ratio of their ages 5 years hence will be 1:2. What is the ratio of their present ages?
   a) 2:5  
   b) 3:2  
   c) 3:7  
   d) 4:5  
   e) None of these

38). The diameter of a smaller circle and a larger circle are the side of a square and the diagonal of the square respectively. If the side of the square is 4cm, what is the ratio of the areas of the smaller circle and the larger circle?
   a) 2:1  
   b) 1:2  
   c) 1:√2  
   d) √2:1  
   e) None of these
39). Amrendra, Birendra and Devendra together can finish a work in 12 days. Amrendra can do it in 24 days while Birendra can do it in 30 days. Amrendra and Birendra work together for 12 days and leave the rest of the work to be completed by Devendra. How many days will he take to do the rest of the work?
   a) 1 day
   b) 12 days
   c) 6 days
   d) 7 days
   e) None of these

40). A farmer wants to divide Rs.135400 between his sons, who are 18 and 20 years old respectively, in such a way that the sum divided at the rate of 8% per annum, compounded annually, will give the same amount to each of them when they attain the age of 22 years. How should he divide the sum?
   a) Rs.66000, Rs.69400
   b) Rs.67500, Rs.67900
   c) Rs.62500, Rs.72900
   d) Rs.65500, Rs.69900
   e) None of These

Answer: c

41). The sum of the diameter and the circumference of circle A is 174m. If the radius of circle B is 7m less than the radius of circle A then what is the circumference of circle B? (in m)
   a) 88
   b) 132
   c) 110
   d) 96
   e) 66

42). There are two taps A and B which fill water and milk respectively. Tap A and B can fill the tank in 10 hours and 12 1/2 hours respectively. Tap A is opened in a tank which is already filled with 8% milk. After 2 hours, tap B is also opened and they both fill the tank. Now in what ratio should the mixture from this tank should be mixed with another mixture containing milk and water in the ratio 2 : 3, such that the resultant solution contains half milk and half water?
   a) 2 : 3
   b) 1 : 1
   c) 1 : 2
   d) 2 : 5
   e) None of these

43). A rectangle has its length and breadth in the ratio 4 : 5. If the dimensions of the rectangle are each increased by 5 m and area of rectangle thus formed is 340 m², then what is the perimeter of the original rectangle?
   a) 43 m
   b) 36 m
   c) 51 m
   d) 54 m
   e) 63 m

44). A square field which was newly built incurred a total cost of Rs 16,000 in fencing at a rate of Rs 50 per meter. But later it was realized that the field has been wrongly constructed, and the new dimension of field...
should be 100 meter * 80 meter. What is the minimum possible cost that will be incurred for fencing the extra part of field at the same rate.
   a) Rs 8,000
   b) Rs 5,000
   c) Rs 6,000
   d) Rs 10,000
   e) Rs 18,000

45). The difference between Simple Interest and Compound Interest after 3 years on a certain sum of money is Rs 12.16. If the rate % is 4% per annum, find the sum.
   a) Rs 2700
   b) Rs 3300
   c) Rs 3600
   d) Rs 2500
   e) None of these

46). The age of Mr X will double in 30 years. B is the sister of Mr. X and is 5 year younger to him. B is married to Mr. Z who is 5 year elder to Mr. X What will be the average Age of B and Mr. Z after 10 years?
   a) 30
   b) 35
   c) 40
   d) 45
   e) None of these

47). A man and his wife appear in an examination for two vacancies for the same post. The probability of husband’s selection is (1/6) and the probability of wife’s selection is (1/4). What is the probability that only one of them is selected?
   a) 1/3
   b) 1/4
   c) 1/5
   d) 1/6
   e) None of these

48). Two stations A and B are 287 km apart. Two trains started their journey from the two stations towards each other at 10 PM. After three and half hours they crossed each other. If the speed of the faster train is 6 km/hr more than the speed of the slower train, then find the speed of the faster train.
   a) 44 km/hr
   b) 38 km/hr
   c) 40 km/hr
   d) 46 km/hr
   e) 35 km/hr

49). A vessel is in the form of a hemi-spherical bowl on which is mounted a hollow cylinder. The diameter of the sphere is 14 cm and the total height of vessel is 25 cm, find the capacity of the vessel.
   a) 3450.45 cu cm
   b) 4450.28 cu cm
   c) 3490.67 cu cm
   d) 4950.49 cu cm
   e) 3830.27 cu cm
50). A and B invested Rs 5850 and Rs 6840. After 3 months, A added Rs 1650 and B withdrew Rs 840. If after a year, a total of Rs 41,800 is gained, what is the difference in the shares in the profit?

a) Rs 1900
b) Rs 2600
c) Rs 2500
d) Rs 1200
e) Rs 1800

Answer Key with Explanation

1). Correct Answer is: D)
Explanation:
Let Saran’s weight = x. Then
According to Saran, 65 < x < 72 —-(equation 1)
According to brother, 60 < x < 70 —-(equation 2)
According to mother, x ≤ 68 —-(equation 3)
Given that equation 1, equation 2 and equation 3 are correct. By combining these equations, we can write as
65<x≤68
i.e., x = 66 or 67 or 68
Average of different probable weights of Saran = (66+67+68)/3=67

2). Correct Answer is: B
(Aashish + Bhaskar)’s 1 day’s work = 1/15
1 Chandan’s 1 day’s work = 1/24
(Aashish + Bhaskar + Chandan)’s 1 day’s work

\[
\left(\frac{1}{15} + \frac{1}{24}\right) = \frac{8 + 5}{120} = \frac{13}{120} \quad \text{…… (i)}
\]
Aashish’s 1 day’s work = (Bhaskar + Chandan)’s 1 day’s work \quad \text{……(ii)}
From (i) and (ii), we get
2(Aashish’s 1 day’s work) = 13/120
Aashish’s 1 day’s work = 13/240
Bhaskar’s 1 day’s work = 13/240 – 1/24 = 3/240 = 1/80
So, Bhaskar alone can do the work in 80 days.

3). Explanation:
Correct Answer is : d
Let the girl’s present age be ‘g’ years.
Let the boys’ present ages be ‘b’ and ‘c’ years.
Given, g > b + c
g+ 1 = b + c + 2
=> g + 1 = (b+1)+(c+1)
=>g=b+c+1
=> g – (b+c) = 1
Kids ages 3 years from today: g + 3, b + 3, c + 3
=> Difference between the girl’s age and the boy’s combined ages
\[(g + 3) - (b + 3 + c + 3) = |g - (b + c)| - 3 = 1 - 3 = -2\]

Since difference is always taken as a positive value, the required difference between the ages will be 2 years.

4). Explanation:
Correct Answer is: c
A alone completes the work in 8 days. So, he does \(\frac{1}{8}\)th of the work in 1 day.
B alone completes the work in 12 days. So, he does \(\frac{1}{12}\)th of the work on 1 day.
Hence, total work completed together in 1 day
\[= \left(\frac{1}{8}\right) + \left(\frac{1}{12}\right) = \frac{5}{24}\]
A and B work together for only 3 days.
Work completed together in 3 days = \(3 \times \frac{5}{24} = \frac{15}{24}\)
Amount of work that B has to complete alone = \(1 - \frac{15}{24} = \frac{9}{24}\)
Number of days that B will take to complete the work = \(\frac{9}{24} / \left(\frac{1}{12}\right) = 4.5\) days
Hence, B can finish the remaining work in 4.5 days.

5). Explanation:
Correct Answer is : c
Let speeds of Kranthi, Shakthi and Bhakthi be denoted by k, s and b respectively.
It is given that Kranthi beats Shakthi by 10m, this means that while Kranthi has travelled 100m, Shakthi has travelled only (100-10) = 90m or 90%.
\[=> s \times t' = 0.9 \times k \times t'\]
\[=> s = 0.9 \times k \quad ...(1)\]
It is also given that Shakthi beats Bhakthi by 5 secs, this means that:
\[=> s \times t = b \times (t+5) = 100 \quad ...(2)\]
Also, it is given that: k=2b ..(3)
Using (3) in (1), we get
\[=> s=0.9 \times 2b=1.8b \quad ..(4)\]
Using (4) in (2), we get
\[=> 1.8bt=bt+5b \Rightarrow 0.8bt=5b\]
\[=> t = \frac{5b}{0.8b} = 6.25\text{s.}\]
Using this result in (2), we get \(s = \frac{100}{t} = \frac{100}{6.25} = 16 \text{ m/s}\)
Using this result in (1), we get \(k = s(0.9) = 16/(0.9) = 17.78 \text{ m/s}\)

6). Explanation:
Correct Answer is : e
Solution :
Let’s assume total work = 1 unit
Total work done by A, B and C in 4 days = \(4\left(\frac{1}{16}\right)+\left(\frac{5}{64}\right)+\left(\frac{1}{32}\right)\) = \(4 \times \frac{11}{64} = \frac{11}{16}\) unit
Remaining work = \(1 - \frac{11}{16} = \frac{5}{16}\) unit
Let’s suppose C worked for ‘n’ days to finish the work.
Hence according to the question, \((5(n-3)/64) + (n/32) = 5/16 \Rightarrow (5n/64) – (15/64) + (n/32) = 5/16\)
\[=> (7n/64) = (35/64)\]
\[=> n = 5\ days\]
Therefore number of days in which the work was completed = \(4 + 5\) days = 9 days
7). Explanation:
Correct Answer is: e
Relative speed of Arun with respect to Varun during 1st hour = 8 – (-5) = 13 km/hr
Now relative speed of Arun with respect to Varun during 2nd hour = 8 – (-6) = 14 km/hr
In this way we will get an Arithmetic series.
Let’s suppose after ‘n’ hours they will met each other.
Sum of ‘n’ terms of an A.P. = n/2 [2a + (n-1)d], where, a = first term and d = common difference
Hence; 112 = (n/2) [(2 X 13) + (n – 1) X 1]
=> 224 = n[n + 25]
=> n2 + 25n – 224 = 0
Solving this we will get; n = 7

8). Explanation:
Correct Answer : e
Solution :
Let the original number be (10a + b) and one-third of that number be (10x + y).
Given, b = x …(i)
a = y – 2 => y = (a + 2) …(ii)
a + b = 6 …(iii)
Also, 10a + b = 3 * (10x + y)
=> 10a + b = 3 *(10b + (a + 2)) [Replacing x and y from equations i and ii]
=> 10a + b = 30b + 3a + 6
=> 7a – 29b = 6 …(iv)
=> 36a = 180 [(29*(iii) + iv]
=> a = 5
=> b = 1 [substituting the value of a in (iii)]
Original number is 51.

9). Explanation:
Correct Answer is: b
Solution : Let the speed of the airplane from city A to B be denoted by s.
Then, the speed of the return journey (from city B to A) = 1.5s.
The total trip distance is given to be equal to 2400 km
Distance between A and B = 2400/2 = 1200 kms.
Average speed for the entire journey = 2400/5 = 480 km/hr.
By definition, the average speed is given by:
(Total distance)/(Forward+Return time) = 2 x 1200/[(1200/s)+(1200/1.5s)]
= (2 X s X 1.5s)/(s+1.5s) = 3s2/2.5s = 1.2s = 480
=> s = (480/1.2) = 400 km/hr. (Forward speed)
=> Return speed = 1.5s = 1.5 X 400 = 600 km/hr.
=> Difference in speeds = 600 – 400 = 200 km/hr.
Hence, the correct answer is option 2.
10). Explanation:
Correct Answer is: c
Solution:
Let the man takes ‘x’ hours to complete the work.
Time taken by boy = ‘x+15’
Work done by man in 1 hour = 1/x
Work done by man in 6 hours = 6/x
Work done by boy in 1 hour = 1/(x + 15)
Work done by boy in 18 hours = 18/(x+15)
According to the question,
181(x+15) + 6/x = 3/5
Solving we get x = 30hrs
Remaining 2/5 work is done by the man in 2*30/5 = 12 hrs
Total time = 18 + 6 + 12 = 36 hours

11). Explanation:
Correct Answer is: c
Solution:
Speed of the 1st train = 18 km/hr = 5 m/s
Suppose the speed of the faster train is S m/s
Relative speed = (S – 5) m/s
The faster train passes a man sitting in the slower train in 52 seconds. It means the faster train takes 52 seconds to cover 130m at the relative speed.
130/(S – 5) = 52
Or, S = 7.5 m/s
Time taken by the faster train to overtake the slower one = sum of lengths/relative speed
= (100+130)/2.5
= 92 seconds

12). Explanation:
Correct Answer is: d
Solution:
The ratio of shares of P, Ct and R in the profit
=Rs.10000: Rs.12000: Rs.15000 = 10: 12: 15
Let ‘K’ be the profit obtained
Share of R in the profit
= 15/(10+12+15)* K = 15/37 K= Rs.3000.
K = 37/15* Rs.3000 = Rs.7400.
Therefore the difference between the shares of Q and P in the profit
= (12/37 – 10/37) (Rs.7400)
= 2/37* Rs.7400 = Rs.400.

13). Explanation:
Correct Answer is: b
Solution:
Given, radius of the park = 105 m.
Circumference of the park = 2 * (22/7) * 105 = 660 m.
=> Time taken by Adam Goldberg to complete 1 round = 660/15 = 44 s.
=> Time taken by Barry Goldberg to complete 1 round = 660/12 = 55 s.
They will meet at the starting point at a time that is the LCM of the time taken by each of them to complete one full round.
They will meet at the starting point after every LCM of 44 s and 55 s = 220 s.
They walked for a total of 1 hour 50 minutes = 110 minutes = 110 * 60 = 6600 s.
=> Number of times they will cross each other = 6600/220 = 30

14). Explanation:
Correct Answer is : a
Solution :
Cost Price (CP) of 150 calculators = 150 X 250 = Rs 37500
Since he spent Rs. 2500 on transportation and packing so,
Total cost Price = 37500 + 2500 = Rs 40000
Marked price of 150 calculators = 150 X 320 = Rs 48000
Since shopkeeper gives 5% discount so selling price will be 95% (100-5) of the marked price.
So, total Selling price after discount = 0.95 X 48000
= Rs. 45600
As we know that profit % = (Selling price – Cost Price)/(cost price) X 100 Percentage profit = (45,600 – 40,000)/40,000 X 100=14%

15). Explanation:
Correct Answer is : e
Solution :
Work done in week 1 = 1/20 + 1/30 + 1/20 + 1/30 + 1/20 = 13/60
Work done in week 2 = 1/30 + 1/20 + 1/30 + 1/20 + 1/30 = 12/60
Work done in 2 weeks = 13/60 + 12/60 = 25/60 = 5/12
Work done in 4 weeks = 5/12 x 2 = 5/6
Work left = 1/6 which will get completed in the 5th week.
Now A will start working on the Monday of the fifth week as it was B who was working on Friday in the fourth week.
Work done on Monday = 1/20 Work done on Tuesday = 1/30
Work done on Wednesday = 1/20
Work done on Thursday = 1/30
Work done in the four days = 1/20 + 1/30 + 1/20 + 1/30 = 1/6
Hence the work will get completed on Thursday.

16). Explanation:
Correct Answer is : d
Solution :
There is only one two digit number that has more than one 6 and that is 66
In the three digit number $6\times6$, the place ‘x’ can be filled in 10 ways; out of them one possibility is 666.
In the three digit number $x66$, the place ‘x’ can be filled in 9 ways; out of them one possibility is 666.
In the three digit number $66x$, the place ‘x’ can be filled in 10 ways; out of them one possibility is 666.
In the above calculations, we have included the number 666 three times instead of only once.
The total number of numbers that have more than one 6, are $1 + 10 + 9 + 10 – 2 = 28$.
Hence, the required number is $1000 – 28 = 972$.
Hence, the correct answer is option 4.

17). Explanation:
Correct Answer is: d
Solution:
As the park remains closed on Sunday and Monday, therefore the 2 children will go to park on any of the remaining days of the week i.e. Tuesday, Wednesday, Thursday, Friday, and Saturday.
=> Number of days park is open = 5
Suppose the first child chooses any day out of these 5 days. so the number of ways he can do this = 5
Similarly, the 2nd child can also choose any one out of the given 5 days to go to park. so the number of ways he can do this = 5
=> Total number of ways in which the 2 children can go to park = 5 * 5 = 25
Now let us consider the number of cases when they go to the park on the same day. The 1st child can go to park in 5 ways. Now the number of ways in which the 2nd child can go to park = 1 {because he goes on the same day as chosen by the 1st child}
=> The number of ways in which the 2 children go to the park on the same day = $5 * 1 = 5$
Now probability = number of favourable event cases / number of total cases
= $5 / 25$
= $1 / 5$
So, option 4 is the correct answer.

18). Explanation:
Correct Answer is : b
Solution :
Let the present age of the man and his wife be $4n$ and $3n$.
According to the question, $(4n+4)/(3n+4)=9/7$
=> $28n + 28 = 27n + 36$
=> $n = 8$
Hence the present age of man and his wife are 32 years and 24 years respectively.
Let’s suppose they got married t years back.
=> $(32-t)/(24 – t) = 7/5$
=> $5(32 – t) = 7(24 – t)$
=> $160 – 5t = 168 – 7t$
=> $2t = 8$
=> $t = 4$ years
So, option 4 is the correct answer.

19). Explanation:
Correct Answer is: d
Solution:
Ratio of equivalent capitals of A, B, and C for 1 month
= \( \frac{40500 \times 6 + 45000 \times 6}{45000 \times 12} : \frac{60000 \times 6 + 45000 \times 6}{600 + 450} \)
= 855 : 1050
= 57 : 60 : 70
Sum of the ratios = 57 + 60 + 70 = 187
Required difference = \( \frac{70 - 57}{187} \times 56100 \)
= Rs. 3900

20). Explanation:
Correct Answer is: B
Laptop Mobile
Let cost price be \( x \) \( y \)
First case: \( \frac{x \times 10}{3} - \frac{20 \times y}{3} = -215 \times 100 \)
or, \( 10x - 20y = -64500 \)
\( x - 2y = -6450 \) \( ......(i) \)
Second case: \( -20x/3 + 10y/3 = -830 \times 100 \)
or, \( -20x + 10y = -249000 \)
\( -2x + y = -24900 \) \( ........(ii) \)
Solving equation (i) and (ii), we get
\( y = Rs. 12600 \)
\( x = Rs. 18750 \)
Thus the cost price of mobile = Rs. 12600

21). Explanation:
Correct Answer is: A
14 Men’s 1 day work = 1/18
14 Men’s 3 days work = 3/18 = 1/6
Now, 15 women’s 1 day work = 1/24
1 woman 1 day work = 1 / (15 \times 24)
10 women’s 1 day work = \( \frac{10}{15 \times 24} = 1/36 \)
10 women’s 3 days work = \( 3 \times \frac{1}{36} = 1/12 \)
Total work done = \( 1/6 + 1/12 = (2 + 1) / 12 = 3/12 = 1/4 \)
Now, remaining work = \( 1 - 1/4 = 3/4 \)

22). Explanation:
Correct Answer is: C
Given, \( 2(l + b) = x \)
\( 2l + 2b = x \) and \( 2\pi r = x + 8 \)
and \( r/l = 1/2 \) and \( l/b = 7/3 \)
\( l = 7b/3 \)
\( r / l = 1/2 \) à \( r = l/2 \)
Now, putting the value of x, r and l in equation (ii)

\[ 2\pi r = x + 8 \]
\[ 2 \times (22/7) \times r - (1/2) = 2l + 2b + 8 \]
\[ (22/7)l - 2l - 2 \times (3l/7) = 8 \]
\[ [ b = 3l/7 ] \]
\[ (22/7)l - 2l - (6l/7) = 8 \Rightarrow (22l - 14l - 6l)/7 = 8 \]
\[ 2l = 56, l = 28 \]

23). Explanation:
Correct Answer is: A)
Let, distance = D and speed of fast train = S1
and speed of slow train = S2
D = 14(S1 + S2) ....(i)
(when both trains are in opposite direction)
and D = 182(S1 - S2) ....(ii)
(when both trains are in same direction)
Now, from Eqs. (i) and (ii), we have
14(S1 + S2) = 182(S1 - S2)
(S1 + S2) = 13(S1 - S2)
13S1 - 13S2 = S1 + S2
12S1 = 14S2
S1 / S2 = 14 / 12 = 7 / 6
S1 = 7/6 S2
Required percentage = \( \left( \frac{7}{6} - 1 \right) \times 100\% \)
= \( \left( \frac{100}{6} \right) \% = 16.66\% = 16.67\% \)

24). Explanation:
Correct Answer is: B
(Aashish + Bhaskar)’s 1 day’s work = 1 / 15
1 Chandan’s 1 day’s work = 1/24
(Aashish + Bhaskar + Chandan)’s 1 day’s work
[(1/15) + (1/24)] = (8 + 5)/120 = 13/120 .... (i)
Aashish’s 1 day’s work = (Bhaskar + Chandan)’s 1 day’s work ....(ii)
From (i) and (ii), we get
2(Aashish’s 1 day’s work) = 13/120
Aashish’s 1 day’s work = 13/240
Bhaskar’s 1 day’s work = 13/240 – 1/24 = 3/240 = 1/80
So, Bhaskar alone can do the work in 80 days.

25). Explanation:
Answer: a)
Let P’s income be = 4x
P’s expenses, therefore = 4x – 50
Let Q’s income be = 5x
Q's expenses, therefore = 5x – 75
We know that the ratio of their expenses = 5 : 6
(4x – 50) / (5x – 75) = 5/6
24x – 300 = 25x – 375
Therefore, x = 75
P's income = 4x = 4 x 75 = 300 and Q's income = 5x = 5 x 75 = 375.

26). Explanation :
Answer: b)
Let Pari’s share = a
Let David’s share = b
Let Farhath’s share = c
a + b = 3(b + c) -------(1)
a + b + c = 42 + a
Therefore, b + c = 42 -------(2)
b = 5c -------(3)
Substituting b + c = 40 from eqn 2 in eqn 1
a + b = 3(42)
Therefore, a + b = 126 -------(4)
Substituting b = 5c from eqn 3 in eqn 2
5c + c = 42
c = 7
From (2), b = 42 – c = 42 – 7 = 35
a + b = 126
a + 35 = 126
a = 126 – 35 = 91
So a = 91, b = 35, c = 7

27). Explanation :
Answer: e)
Let S = Science, E - Economics
Total marks S + E= 180
Difference S – E = 10
(S+E)/(S-E)= 180/10 ------- (1)
Adding 1 to both sides of equ 1:
2S/(S-E) = 19 ------- (2)
Subtracting 1 from both sides equ 1:
2E/ (S-E) = 17 ------- (3)
Dividing equ 2 by equ 3:
S/E = 19 / 17 => This is the desired ratio.

28). Explanation :
Let the smallest odd number and even number be x and y respectively, where y> x. Hence, the next two odd numbers must be x + 2 and x + 4.
Again, the next two even numbers must be $y + 2$ and $y + 4$.

Now according to first condition,

$x + (x + 2) + (x + 4) + y + (y + 2) + (y + 4) = 231$

$3x + 6 + 3y + 6 = 231$

$3 (x + y) = 231 - 12$

$3 (x + y) = 219$

$x + y = 73$

Now according to second condition,

$y - x = 11$

On solving Eqs. (i) and (ii), we have

$y = 42$ and $x = 31$

Now, the sum of the largest even and largest odd number is given by $x + 4 + y + 4 = x + y + 8 = 81$

Answer: e)

29). Explanation :

Answer: C

Let the money lent to Anshul be Rs. $x$

Then, money lent to Rajat = ` $(20000 - x)$

SI for Anshul = $x * 20 * 4/100 = 20x/25$

SI for Rajat = $(20000 - x) * 24 * 4/100 = 20x/25$

According to the question,

$20x/25 - (20000 - x) 24/25 = 864$

$x = 11400$

Amount lent to Rajat = Rs. $(20000 - 11400) = Rs. 8600$

30). Explanation :

Answer: A

Speed of the person = 6 km/hr

$= 6 * 5/18 = 5/3$ m/s

Let the speed of train be $x$ m/s

$20 = 280/(x - 5/3)$

$x - 5/3 = 14$

$x = 47/3$ m/s

Now the distance covered by train in 45 minutes.

$= 47/3 * 60 * 45 = 42300$

Time taken by person to cover the distance

$= 42300/(6*5/18) = 25380$ sec

$25380/(60 * 60) = 7$ hours 3 minutes

31). Explanation :

Answer: E

Sum of the weight of P, Q, R and S = $84\times4= 336$ kg

and average weight of P, Q, R, S and T = 79 kg

sum of the weight of P, Q, R, S and T

www.ibpsguide.com | estore.ibpsguide.com | www.sscexamguide.com

For Free Online Mock Test: Visit- estore.ibpsguide.com
= 79 × 5 = 395 kg
weight of T = 395 – 336 = 59 kg
weight of U = 59 + 4 = 63 kg
Now, average weight of U, Q, R, S and T = 80 kg
Sum of the weight of U, Q, R, S and T = 80 × 5 = 400 kg
Q + R + S = 400 – 59 – 63 = 278 kg.
Weight of P = 336 – 278 = 58 kg.

32). Explanation:
Answer: B
Now, milkman sold 50 litre of mixture
So, remaining mixture = 180 – 50 = 130 litre
Quantity of water = 130 × 32/100 = 41.6 litre
Quantity of milk = 88.4 litre.
Now, milkman made new mixture in which
water = 41.6 + 15 = 56.6 litre
milk = 88.4 + 35 = 123.4 litre
Percentage of water in the new mixture
= 56.6/(56.6 + 123.4) * 100 = 31.44%

33). Explanation:
Answer: b)
Let E = k1x + k2 where E stands for expenses, k1 and k2 are constants.
When x = 300 & E = 2300 we have,
300k1 + k2 = 2300 ------(i)
When x = 450 & E = 2600 we have,
450k1 + k2 = 2600 ------(ii)
By solving (i) & (ii), we get: k1 = 2 & k2 = 1700
Therefore, E = 2x + 1700
Now, When x = 500, we get E = 2*500 + 1700 = 2700

34). Explanation:
Answer: E
Distance travelled by 1st man in 6 days
D1 = 24 × 6 = 144 km
and by 2nd man
D2 = 36 × 6 = 216 km
Let the total distance be x km
For remaining distance, let both take t days to reach the final destination
x – 144 = 2 × 24 t
x – 144 = 48 t -- (i)
and x – 216 = 36 t -- (ii)
from (i) and (ii), we get
Then, x – 144 – x + 216 = 48t – 36t
72 = 12 t
 t = 6 days
Total days = 6 + 6 = 12 days

35). Explanation :
Answer: C
Here a : b = 9 : 4 and c : d = 7 : 3 and x = ` 5000
Roshan’s expenditure
= x (b – a)/ad – bc
= (5000 * 7(4 - 9))/9*3 - 4*7
= (5000 * 7 * 5)/(28 - 27)
= Rs. 175000
Surbhi’s expenditure
= xd (b – a)/(ad – bc)
= 5000 × 3 × 5 = Rs. 75000
Required sum = = Rs. (175000 + 75000) = Rs. 250000

36). Correct Answer is: (d)
Explanation:
Travels between 5 pm and 5.15 pm
The difference is= 15 mins
So, 50*15/60=12.5 km
Remaining Distance= 400-12.5=387.5 km
Relative speed=50+80=130 km/hr
They meet after=387.5/(80+50)=387.5/130=2 hrs 58 min(approx)
Hence they meet at 5.15+2.58=8.13 pm
Meeting distance=100+48.33=148.33 km

37). Explanation:
Answer: c)
Let the present age of Mala and Kala be X and Y respectively.
According to the question,
X-10/ Y-10 = 1/5 ; X+5/ Y+5 = 1/2
5X – 50 = Y-10
5X – Y = 40 —— (1)
X+5/ Y+5 = 1/2
2X + 10 = Y+5
2X – Y = -5 —— (2)
From equation (1) and (2) we get,
X = 15 and Y = 35
Hence, the present ages of Mala and Kala is 15 and 35
∴ Required ratio = 15: 35 = 3 : 7

38). Explanation:
Answer: b)
The radius of the smaller circle (r) = side of the square
Hence, d = 4; r = 2
The radius of the larger circle (R) = diagonal of the square
Hence, R = \sqrt{2} \times 2
Area of smaller circle: Area of larger circle
= (2) ^2: (\sqrt{2} \times 2) ^2
= 4: 8
= 1:2

39). Explanation:
Let total work
= LCM of 12, 24 and 30 = 120 units
Amrendra’s 1 day’s work = 5 units/day
Birendra’s 1 day’s work = 4 units/day
(A + B + D)’s 1 day’s work = 10 units/day
Devendra’s 1 day’s work \{10 — (5 + 4)} = 1 unit/day
Amrendra and Birendra’s 12 days’ work = 12 x 9 = 108 units
Remaining work = 120 – 108 = 12 units
Devendra will do this work in (12 /1 =12 days)

40). Explanation:
Let the farmer give Rs.x to the 18 – years-old son and the remaining Rs.(135400 -x) to his 20-year-old son.
Now, x[1 + (8/100)]4 = (135400 – x) [1 + (8/100)]2
or, x(108/100)2 = (135400 – x)
or, x(27 / 25)2 = (135400 – x)
or, x[(729/625) +1] = 135400
or, x = (135400/1354) x 625 = 62500
x = Rs.62500
For 18-year-old son = Rs.62500
For 20-year-old son = Rs.72900

41). Explanation :
Answer: A)
Circumference of the circle A = 2 \pi r
And diameter = 2r
Thus, 2r + 2 \pi r = 174
or, 2r(1 + \pi) = 174
or, r(1 + \pi) = 87
r = 87 / [ 1 + (22/7)] = (87x7) / 29 = 21cm
Radius of the circle B = 21 — 7 = 14 cm
Circumference of the circle B
= 2 x (22/7) x 14 =88 cm
42). Ans: B
Solution:
Let total capacity of tank = 100 litre
Given tank is already contain 8% milk
First Tap A runs for 2 hr. means tank fill by water
2/10=1/5 part or 20% water in it
Now 20 l water and 8 l milk in tank
Next 72% part of tank still empty
Both Tap A and B can fill full tank in 1/10 + 1/12.5 = 9/50 means 50/9 hr
So 72% part fill by tank A and B= 72/100*50/9 = 4hr
After this water in tank = 4/10 * 100= 40% and milk =
4/12.5 * 100 = 32%
So Total water in tank = 20+40 = 60l and milk in tank = 40l
So Water : Milk ratio = 3 : 2
Given ratio water : milk = 2 : 3
So by method of allegation:
3/5———-2/5
———-1/2
1/10———-1/10
So Water : Milk ratio = 1 : 1

43). Ans: D
4x, 5x;(4x+5)(5x+5) = 290
20x^2+ 45x + 25 = 340
20x^2 + 45x + 25 = 340
20x^2 + 45x – 315 = 0
4x^2 + 9x – 63 = 0
4x^2 – 12x + 21x – 63 = 0
Solve, x = 3
So old perimeter = 2*(4x+5x) = 18x = 18*3 = 54m

44). Ans:C
Explanation:
Perimeter of field = 16000/50 = 320
=>side of square = 80 meter
Now the total cost will be minimum, when one of the side of the field is demolished and extended by 20 m on its length to get the total length of 100 m, and then the 80 m demolished boundary is constructed.
So the total length now to be fenced = 20+80+20 meter
= 120 meter
Total cost =120*50 = Rs 6,000

45). Ans: D
Explanation:
Formula for difference between SI and CI for 3 years
Difference = P * r²/100² * (300+r)/100
So 12.16 = P * 16/10000 * 304/100
So P = 1216 * 10000/(16 * 304) = 76*100*100/304 = Rs 2500

46). Ans:C
Explanation:
Age of X = x
x+30 = 2x
=>x = 30
B = 25 ; Z = 35
After 10 years total age = 25+10 +35+10 = 80
Average = 40 years

47). Sol:A
Explanation:
P(Man selected) = 1/6 ; P(Man not selected) = 1 – 1/6 =5/6
P(Wife selected)= 1/4 ; P(Wife not selected) = 3/4
Required Probability = (Man selected & Wife not selected) OR (Wife selected & Man not selected)
= (1/6 *3/4 ) + ( 1/4 *5/6 )
= 1/3

48). Ans: A
Solution:
Relative speed of both trains = 287/ 3.5 = 82 km/hr
If they were moving at the same speed, means each travelling at 82/2 = 41 km/hr
But difference in speed of trains is 6 km/hr.
So add 6/2 = 3 to 41 for speed of faster train and subtract 3 from 41 for speed of slower train.
So faster train’s speed = 41+3 = 44 km/hr, and of slower = 41-3 = 38 km/hr

49). Ans:C
Explanation:
Diameter is 14, so radius is 7 cm
Total height = 25 cm, so height of cylinder = 25-7 = 18 cm (because height of hemisphere is same as its radius)
Capacity of vessel = volume of cylinder + volume of hemisphere
So = πr²
h + 2/3 *πr³
\[
= \frac{22}{7} \times 7 \times 7 \times 18 + \frac{2}{3} \times \frac{22}{7} \times 7 \times 7 \\
= 2772 + 718.67 \\
= 3490.67 \text{ cu cm}
\]

50). Ans: A
Explanation:
\[
A : B \\
5850 \times 3 + 7500 \times 9 : 6840 \times 3 + 6000 \times 9 \\
65 \times 3 + 750 : 76 \times 3 + 600 \\
189 : 207 \\
21 : 23 
\]
So difference = \((23 - 21)/(21 + 23)\) \times 41800 = Rs 1900