



TOP 50 Application Sums for PO Mains Examinations

1) Present ages of Rajan and Vishal are in the ratio 6: 7 respectively. Present age of Pankaj is 25% more than the present age of Rajan. Find the present age of Pankaj, if the present average age of Vishal and Pankaj is 29 years?

- a) 28 b) 30 c) 40 d) 51 e) None of these

2) A shopkeeper marked an article 45% above the cost price and sold it after two consecutive discounts of 10% and 20%. Find the cost price of the article, if the difference between the selling price and marked price of the article is Rs. 1,827?

- a) 4200 b) 5200 c) 6500 d) 4500 e) None of these

3) A, B and C alone can do a certain piece of work in 32, 24, and 28 days respectively. They started working together but after 'x' days A left the job and 'x + 1' days before completion of the work B also left the work. If the whole work was completed in '4x - 2' days, then find the value of 'x'?

- a) 2 b) 8 c) 4 d) 4.5 e) None of these

4) Ajay invested Rs. 'x' in a scheme Z. Scheme Z offers compound interest at the rate 10% compounded annually for the first three years and then simple interest at the rate 8% for the next five years. Find the value of 'x', if the total interest earned by Ajay after eight years is Rs. 34,536?

- a) Rs. 45000 b) Rs. 36000 c) Rs. 48000 d) Rs. 36000 e) Rs. 40000

5) The ratio of cost price to the marked price of an article is 5: 8 respectively. The shopkeeper sold the article at 20% profit. Had the shopkeeper bought the article for Rs. 300 more and sold the article at 10% profit, then he would have earned Rs. 180 more. Find the marked price of the article?

- a) 3400 b) 2400 c) 4200 d) 4600 e) None of these

6) A rectangular park has been fenced at the rate of Rs. 8 per m. The total cost incurred in fencing is Rs. 2048 and the length of the park is 72 m. If a path of width 4 m has been made around outside the boundary of the park, then find the area of the path?

- a) 1500 m² b) 1700 m² c) 1200 m² d) 1088 m² e) None of these

7) The ratio of the age of Raman and Suman is 9:7, respectively. After 4 years, the ratio of age of Raman and age of Vishnu will become 8:5, respectively. Find the age of Suman, if Vishnu is 7 years younger than Suman?

- a) 26 years b) 28 years c) 24 years d) 23 years e) None of these

8) Kunal deposits Rs. 6000 in a scheme offering 20% compound interest per annum and Mahesh deposits some amount in a scheme offering 16% simple interest per annum. After 2 years, the difference between the total amount received by Mahesh and interest earned by Kunal will be Rs. 9240. Find the ratio of the amount deposited by Mahesh to the amount deposited by Kunal?

- a) 2:5 b) 3:1 c) 3:2 d) 5:3 e) None of these

9) The time taken by a train of length 360 m to cross a boy is 24.8 seconds less than the time taken by it to cross a 620 m long platform. Find the time taken by the train to cross another train of length 315 m which is running at a speed of 20 m/s in the opposite direction towards it.

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- a) 15 secs b) 12 secs c) 16 secs d) 13 secs e) 20 secs

10) Average age of a school of 22 teachers is increased by 4 years when the age of Headmaster and age of new teacher is also taken. If only the age of new teacher is added the average is increased by only 1 year. The age of the headmaster is 5 years less than twice the age of new teacher, then find the average age of the school including headmaster and new teacher.

- a) 32 years b) 28 years c) 36 years d) 40 years e) None of these

11) Amir received 80% of exam fees from Mother, 10% of fees from his brother and 10% fees from his sister. In the next year the fees received from mother and his sister is decreased by 20%. By how much percentage should the fee received from his brother be increased, given that the total fees requirement is same as that of previous year?

- a) 170% b) 180% c) 200% d) 195% e) None of these

12) The quantity of Apple, Orange and Banana in a shop is in the ratio of 3:6:1. Ovi purchases 15% of apple, 10% of Orange and 20% of banana, the total of which was 30% less than the total fruits bought by Kavin. If Kavin bought Apple, Orange and Banana in the ratio of 8:5:7 in which number of orange bought are 12 kg less than the Banana bought. Find the total quantity of all three fruits shop had?

- a) 672 b) 902 c) 784 d) 856 e) None of these

13) A, B and C each of them have some money. C distributes half of his amount equally between A and B and after that ratio of the amount with A, B, C is 5:4:3 then what was the ratio of initial amount with A, B and C?

- a) 9:5:15 b) 5:9:12 c) 15:5:9 d) 7:5:12 e) None of these

14) Boat X covers 80km downstream in 30minutes less time than the time taken by another boat Y to cover the same distance upstream. The ratio speed of boat X in still water to upstream speed of Y is 5:6. Time taken by boat X in still water to cover 1/8 of given distance is 2 hours. Find the speed of stream.

- a) 95/77 kmph b) 86/45 kmph c) 94/75 kmph d) 89/77 kmph e) None of these

15) Pipe P and pipe Q together can fill a tank in 15 minutes. Pipe Q, pipe R and pipe S together can fill the tank in 12 minutes. Pipe P, pipe R and pipe S together can fill the tank in 10 minutes. Pipe P, pipe Q and pipe T together can fill the tank in 20 minutes. Find the number of days taken by pipe P and pipe T together to fill half of the tank.

- a) 25 minutes b) 20 minutes c) 30 minutes d) 40 minutes e) None of these

16) Anuj, Vikram and Sunidhi entered into a partnership with investment in the ratio 5:3:4 respectively. After one year, Anuj invested Rs.20000 more and Vikram doubled his investment. After one more year, Sushree joined them with investment equal to initial investment of Anuj and Sunidhi invested Rs.10000 more. At the end of three years, they earned a total profit of Rs.198000. Share of Anuj in the profit is Rs.68000. Find the share of Vikram in the profit.

- a) Rs.48000 b) Rs.52000 c) Rs.60000 d) Rs.64000 e) None of these



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17) Train M started from station A towards station C with the speed of 38 Km/h. At the same time, train N started from station B towards station C with the speed of 42 Km/h. Station A, station B and station C are in a straight line such that station B is between station A and station C. Distance between station A and station B is 560 Km and distance between station B and station C is 420 Km. Find the distance between station M and station N after 3 years.

- a) 382 Km b) 572 Km c) 432 Km d) 616 Km e) None of these

18) Ratio of the ages of Asish and Sarita before four years was 8:7 respectively. At the time of marriage, ratio of their ages was 15:13 respectively. After six years, ratio of their ages will be 21:19 respectively. Age of Sunidhi at the time of marriage of Asish and Sarita was 28 years. Present age of Sunidhi is what percent of present age of Sarita?

- a) 106.67% b) 106.25% c) 102.24% d) 108.33% e) None of these

19) Jeevita bought an article and marked a certain price on the article. She sold the article at a discount of 8% on the marked price such that selling price of the article is 15% more than the cost price of the article. If she marked the price of the article Rs.500 more than the cost price, profit earned by Jeevita is what percent of the price marked by her?

- a) 12% b) 20% c) 16% d) 18% e) None of these

20) Ashok, Karthi and Mahesh entered into a partnership to construct a building by investing in the ratio of 5: 4: 7. After one year, Ashok invested Rs. 15000 more and after another one more year, Mahesh invested Rs. 12000 more. At the end of 3 years, their profits are in the ratio of 30: 20: 37. Find the initial investment of Karthi?

- a) Rs. 40000 b) Rs. 35000 c) Rs. 20000 d) Rs. 25000 e) None of these

21) Two pipes A and B can fill a tank in 15 hours and 20 hours respectively, while a third pipe 'C' can empty 60% of the tank in 15 hours. All three pipes are opened in the beginning. After 8 hours B is closed. Find the time which the tank will be full?

- a) 10 hours b) $18\frac{1}{2}$ hours c) $11\frac{3}{4}$ hours d) $13\frac{2}{5}$ hours e) None of these

22) 6 years ago, the ratio of the ages of Arun and Bharathi is 4: 5. Present age of Ragu is 10 years more than one – sixth of Bharathi's present age. Find the ratio of present age of Bharathi and Ragu, if Arun's age after 6 years is 36 years?

- a) 8: 3 b) 9: 4 c) 7: 5 d) 5: 3 e) None of these

23) The side of the equilateral triangle is equal to the radius of the circle. The area of the equilateral triangle is $49\sqrt{3}$ Sq cm. Find the circumference of the circle?

- a) 75 cm b) 106 cm c) 88 cm d) 115 cm e) None of these

24) 4 years ago, the ratio of ages of Rajiv and Ganga is 5: 4. Vaishali is 3 years younger than Rajiv and 2 years elder than Ganga. Find the sum of the present age of Rajiv and Ganga?

- a) 57 years b) 62 years c) 53 years d) 60 years e) None of these



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25) The circumference of a circle is half of the perimeter of a rectangle. The area of the circle is 1386 Sq m. What is the area of the rectangle if the breadth of the rectangle is 50 m?

- a) 4100 Sq m b) 4350 Sq m c) 3600 Sq m d) 4800 Sq m e) None of these

26) Ajay and Jega enter into a partnership by investing Rs. 40000 and Rs. 60000 respectively. At the end of 5 months, Ajay withdraw one - fourth of his initial investment and at the end of 7 months, Jega withdraw two-third of his initial investment and then Saaru entered with a capital of Rs. 45000. If the total profit at the end of the year is Rs. 173250, then find the share of Jega?

- a) Rs. 66000 b) Rs. 78000 c) Rs. 82000 d) Rs. 54000 e) None of these

27) The average salary of the whole employees in a company is Rs. 615 per day. The average salary of officers is Rs. 1000 per day and that of clerks is Rs. 560 per day. If the number of officers is 20, then find the number of clerks in the company?

- a) 120 b) 130 c) 160 d) 140 e) None of these

28) 3 years ago, the ratio of age of A and B is 2: 3. After 8 years, the sum of the ages of A and B is 97 years. C is 5 years elder to D. The average of present ages of A, B, C and D is 45 years. Find the present ages of C and D?

- a) 48 years and 36 years b) 50 years and 42 years c) 52 years and 47 years
d) 45 years and 35 years e) None of these

29) If the difference between the discount of 35% and two successive discounts of 28% and 20% is equal to Rs. 888, then find the cost price of article if the shopkeeper marked up the price by 25%?

- a) Rs. 10200 b) Rs. 9600 c) Rs. 11400 d) Rs. 8500 e) None of these

30) A boat takes 27 hours for travelling downstream from point A to point B and coming back (upstream) to point C midway between A and B. If the velocity of the stream is 12 km/hr and the speed of the boat in still water is 28 km/hr, then find the distance between A to B?

- a) 360 km b) 520 km c) 480 km d) 440 km e) None of these

31) A Circular path is surrounding the circular plot is being gravelled at a total cost of Rs. 5390 at Rs. 5 per square meter. Find the width of the path, if the radius of the circle is 21 m?

- a) 8 m b) 10 m c) 9 m d) 7 m e) None of these

32. The compound interest on a certain sum at 16 % per annum for 2 years is Rs. 10368. The simple interest on the same sum for double the time at half the rate percent per annum is?

- a) Rs. 8400 b) Rs. 7800 c) Rs. 9600 d) Rs. 9200 e) None of these

33. The area of a rectangular plot is 432 sq cm. The length is 3 times the breadth. If the cost of fencing the plot is Rs. 8 per cm, then find the total cost to fence the plot?

- a) Rs. 768 b) Rs. 716 c) Rs. 724 d) Rs. 652 e) None of these

34. Aravind, Kathir and Mani entered into a partnership to construct a building by investing in the ratio of 5: 3: 2. After one year, Aravind invested Rs. 30000 more and after another one year, Mani invested Rs.

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20000 more. At the end of 3 years, their profits are shared in the ratio of 57: 27: 22. Find the initial investment of Kathir?

- a) Rs. 36000 b) Rs. 48000 c) Rs. 51000 d) Rs. 45000 e) None of these

35. B is $\frac{6}{5}$ times as efficient as A. If A can fill the $\frac{2}{3}$ of the tank in 24 min, what fraction of the capacity of the tank would remain incomplete if B can fill the tank independently for 10 min only?

- a) $\frac{1}{2}$ b) $\frac{2}{3}$ c) $\frac{1}{4}$ d) $\frac{1}{3}$ e) None of these

36. B takes $33\frac{1}{3}\%$ more time than A, C takes 50% more time than B for completing a task. A & C start work together and work for 10 days, after that C replaced with B and remaining task completed by A & B in 15 more days. If all three works alternatively, starting with A, followed by C and B respectively, find how many days required to complete the task?

- a) 74 $\frac{1}{4}$ days b) 64 $\frac{1}{4}$ days c) 54 $\frac{3}{4}$ days d) 72 $\frac{1}{4}$ days e) 80 $\frac{1}{4}$ days

37. Ormila invested Rs. 4500 at the rate of R% for $11\frac{1}{2}$ years on S.I and got a total interest of Rs. 1012.5. If he reinvested total amount and an additional amount of Rs. 87.5 at (R+5)% interest rate on compound interest annually then find total C.I. got by man at the end of two years?

- a) Rs 2730 b) Rs 3730 c) Rs 2840 d) Rs 2320 e) Rs 2464

38. Distance between two cities A & B is 576 km. A train start from A at 9.00 am and reach B at 1.00 pm. While returning, train start from B at 4.00 Pm with $\frac{3}{4}$ th of its speed and reach city A at 9.20 pm. If train takes 21 sec to cross a 600 meter long tunnel at its usual speed then find in what time train will cross a 180 meters long train, which running at the speed of 90 km/hr from same direction?

- a) 28 sec b) 24 sec c) 20 sec d) 16 sec e) 18 sec

39. Gita, Sita and Mita enter into a partnership business with Rs 8000, Rs 12000 and Rs 16000 respectively. At the end of four months Gita withdrew 25% of her initial capital and after six months Sita added $16\frac{2}{3}\%$ of her initial capital and after eight months Mita withdrew 25% of her initial capital. Find the profit share of Gita, if they get a total profit of Rs 25750 after one year.

- a) Rs.12250 b) Rs.5000 c) Rs.3750 d) Rs.43000 e) Rs.4200

40. A man invested a sum into three parts in the ratio of 1 : 2 : 4 respectively. First part is invested for three years at 15% p.a on simple interest, second part is invested for two years at 10% p.a on compound interest and third part is invested for two years at 5% p.a on compound interest. If simple interest received from first part is Rs. 81.4 more than compound interest received from third part. Find total compound interest received by man from second part?

- a) Rs.888.7 b) Rs.856.7 c) Rs.800.7 d) Rs.854.7 e) Rs.896.7

41. Ankita complete $\frac{2}{5}$ th of a work in 48 days and her husband can do $\frac{3}{5}$ th of same work in 96 days. If Ankita and her husband start working together and work for x days and after that their daughter joined them and remaining work completed in (x - 15) more days. If efficiency of daughter is $\frac{1}{3}$ rd of her mother's efficiency, then in (x + 20) days Ankita and her daughter complete what percent of work?

- a) 45% b) 50% c) 40% d) 48% e) 56%



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42. There are two vessels A and B, vessel A contains $(x + 48)$ liters mixture of milk and water in the ratio of 7: 5, while vessel B contains $(x + 54)$ liters mixture of milk and water in the ratio of 8 : 7. If 25% of mixture from vessel A and 28% of mixture from vessel B taken out and poured in vessel C and then remaining mixture in vessel A and vessel B becomes equal. Find quantity of milk in vessel C?

- a) 48.4 liters b) 45.4 liters c) 43.4 liters d) 46.4 liters e) 50.4 liters

43. There are two vessels. The first vessel has 60 litres of mixture of milk and water, only 30 % of water in that mixture. And the second vessel has 40 litres of mixture of milk and water, the percent of water in that mixture is only 20%. 15 litres of mixture taken out the first vessel and that of poured to the second vessel. Then 15 litres of mixture taken out from second vessel and that of poured to the first vessel. What is the percentage of milk in the final mixture that the first vessel?

- a) 71(9/11)% b) 86(9/11)% c) 65(9/11)% d) 82(9/11)% e) None of these

44. A tank is full of water and three bucket of different volumes is used to empty the tank. The volume of smallest bucket is $\frac{2}{5}$ of the volume of largest bucket and the volume of second largest bucket is 120% of the volume of smallest bucket. 10 buckets full of the water of the largest bucket type are taken out from the tank and followed by 8 buckets full of the water of the second largest type are taken out the tank, finally 6 buckets full of the water of the smallest type to completely empty tank. What is the ratio of the volume of the second largest buckets to the volume of the tank?

- a) 6:203 b) 4:207 c) 5:209 d) 2:207 e) None of these

45. Total number of students in the classroom is 360 out of which one-ninth passed in all three subjects-A, B and C. One-sixth of the total students failed in all subjects and one-fourth of all students that passed at least one exam is equal to the number of students who passed only in subject A. One-fourth of the total students passed in both A and B and 50 students passed in both A and C. Find the total number of students who passed in subject A

- a) 180 b) 165 c) 155 d) 175 e) None of these

46. Prince decides to deposit his savings at the end of each year to his bank account. He initially deposits Rs.30000. At the end of the first year, he adds another Rs.10000 to his account, and adds a further Rs.20550 at the ends of the second year. If the bank offers compound interest and the interest rates for first, second and third years are 10%, 15% and 5% respectively. And another person Sonu invested Rs.50000 to his account for 3 years at the compound interest rate of 15%. What is the difference between amount in Prince Account at the end of the third year and the amount in Sonu account at the end of three years?

- a) 2543.75 b) 1873.75 c) 2263.75 d) 2453.75 e) None of these

47. A company manufactures a total of 100 washing machines at a cost of Rs.15000 each. The company fixed marked price of the washing machine such that if only 48 washing machines were sold it still makes a total profit of 8%. Company sold 48 washing machines at the marked price and one-two of the remaining at a discounting of 20%. The company sells the remaining washing machines at a discount of 30%. Find the total amount of profit that the company makes

- a) 1436250 b) 1326350 c) 1245250 d) 1126250 e) None of these



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48. Renu gives Ringit ahead a start of 20 metre in a 200 metre race and still beats her by 20 metres. If Renu is able to complete the 400 metres race in 40 seconds then how much time Ringit will take to complete the 200 metres race?

- a) 25 seconds b) 54 seconds c) 35 seconds d) 65 seconds e) 14 seconds

49. Jeeva and Kumar participate in a 7600m bicycle race which is being run on a circular track of 800m. If the speed of Jeeva and Kumar are 40m/s and 20m/s respectively then what is the distance covered by Jeeva when he passes Kumar for the 11th time?

- a) 120 m b) 268 m c) 864 m d) 923 m e) Cannot be determined

50. P is twice as fast as Q and Q is thrice as fast as R. A journey is covered by R in 84 min and the corresponding time taken by P is the same as the time taken by bus to complete its journey at the speed of 120 km/hr. What is the distance covered by the bus?

- a) 42 km b) 34 km c) 23 km d) 31 km e) 28 km

Solution

1. Answer: B

Let the present ages of Rajan and Vishal be '6x' years and '7x' years respectively.

Present age of Pankaj = $6x \times 1.25 = 7.5x$ years

According to question,

$$7x + 7.5x = 2 \times 29$$

$$14.5x = 58$$

$$x = 4$$

So, the present age of Pankaj = $7.5 \times 4 = 30$ years

2. Answer: D

Let the cost price of the article be Rs. 'x'.

Marked price of the article = Rs. 1.45x

Selling price of the article = $1.45x \times 0.80 \times 0.90 = \text{Rs. } 1.044x$

So according to question,

$$1.45x - 1.044x = 1827$$

$$0.406x = 1827$$

$$x = 4500$$

So, the cost price of the article = Rs. 4,500

3. Answer: C

Number of days A worked = 'x'

Number of days B worked = $(4x - 2) - (x + 1) = (3x - 3)$ days

Number of days C worked = $(4x - 2)$ days

Let the total work = 672 units (LCM of 24, 28 and 32)

Amount of work done by A in one day = $672 \div 32 = 21$ units

Amount of work done by B in one day = $672 \div 24 = 28$ units

Amount of work done by C in one day = $672 \div 28 = 24$ units

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So according to question,

$$21x + 28(3x - 3) + 24(4x - 2) = 672$$

$$21x + 84x - 84 + 96x - 48 = 672$$

$$201x - 132 = 672$$

$$201x = 804$$

$$x = 4$$

4. Answer: E

Amount received after 3 years = $x \times (1 + 0.10)^3 = \text{Rs. } 1.331x$

Amount received after 8 years = $1.331x + 1.331x \times 5 \times 0.08 = 1.331x + 0.5324x = \text{Rs. } 1.8634x$

Interest earned after 8 years = $(1.8634x - x) = 34536$

$$0.8634x = 34536$$

$$x = 40000$$

So, the amount invested by Ajay = Rs. 40,000

5. Answer: B

Let the cost price and marked price of the article be Rs. '5x' and Rs. '8x', respectively.

Selling price of article = 120% of 5x = Rs. 6x

New cost price of article = Rs. '5x + 300'

New selling price of article = 110% of (5x + 300) = Rs. '5.5x + 330'

So, $5.5x + 330 - 6x = 180$

$$0.5x = 150$$

$$x = 300$$

So, marked price of the article = $8x = \text{Rs. } 2400$

6. Answer: D

Let the breadth of the park be 'x' m.

Perimeter of the park = $2048/8 = 256$ m

$$\text{So, } 2 \times (72 + x) = 256$$

$$72 + x = 128$$

$$x = 56$$

Area of path = $80 \times 64 - 72 \times 56 = 5120 - 4032 = 1088 \text{ m}^2$

7. Answer: B

Let, age of Raman and Suman be '9x' years and '7x' years, respectively.

Present age of Vishnu = '7x - 7' years

According to question,

$$(9x + 4)/(7x - 7 + 4) = 8/5$$

$$45x + 20 = 56x - 24$$

$$11x = 44, x = 4$$

Age of Suman = $7x = 28$ years.

8. Answer: C

Interest earned by Kunal in 2 years = $6000 \times \{(1.20)^2 - 1\} = 6000 \times 0.44 = \text{Rs. } 2640$

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Let, amount deposited by Mahesh be Rs. 'x'.

Total amount received by Mahesh after 2 years = $x \times (1 + 0.16 \times 2) = \text{Rs. } 1.32x$

So, $1.32x - 2640 = 9240$

$1.32x = 11880$

$x = 9000$

Required ratio = $9000 : 6000 = 3 : 2$

9. Answer: A

Let the speed of train be 'x' m/s.

So, $\{(360 + 620)/x\} - (360/x) = 24.8$

$620/x = 24.8$

$x = 25$

Required time = $(360 + 315) / (25 + 20) = 675/45 = 15$ seconds

10. Answer: C

Average age of 22 teachers be x

Total age of 22 teachers = $22x$

Total age of the school when age of headmaster and teacher is also included

$22x + H + N = 24(x + 4)$

$H + N = 2x + 96$

Total age of the school when only the age new teacher of is included

$22x + N = 23(x + 1)$

$N = x + 23$

Age of headmaster is 5 years less than twice age of new teacher

$H = 2N - 5$

$2x + 96 = 2(x + 23) - 5 + x + 23$

$2x + 96 = 2x + 46 - 5 + x + 23$

$X = 96 - 46 + 5 - 23$

$X = 32$

Average age of school including Headmaster and new teacher = $x + 4 = 32 + 4 = 36$ years

11. Answer: B

Let the fee requirement be $100x$

Fee received from mother = $100x * 80/100 = 80x$

Fee received from brother = $100x * 10/100 = 10x$

Fee received from sister = $100x * 10/100 = 10x$

Next year fee received from sister = $10x * 80/100 = 8x$

Next year fee received from mother = $80x * 80/100 = 64x$

Next year Fee from brother = $100x - 64x - 8x = 28x$

% increased in fee received from brother = $(28x - 10x) * 100/10x = 180\%$

12. Answer: A

Total of all three fruits = $3x + 6x + x = 10x$

Fruits purchased by Ovi = $3x * 15/100 + 6x * 10/100 : x * 20/100$

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$$=5x/4$$

$$\text{Fruits purchased by Kavin} = 5x/4 * 100/70 = 25x/14$$

$$\text{Kavin bought apple, orange and banana} = 8y:5y:7y$$

$$2y=12$$

$$y=6\text{kg}$$

$$8(6)+5(6)+7(6) = \text{Kavin bought apple, orange and banana}$$

$$70/100 * \text{Kavin bought apple, orange and banana} = \text{Ovi bought apple, orange and banana}$$

$$120 * 70/100 = 84$$

$$84=5x/4$$

$$x=336/5$$

$$\text{Total of all three fruits in the shop} = 3x+6x+x$$

$$10x=10(336/5) = 672$$

13. Answer: D

Let's assume initially total money with $C=100c$

Initial amount with $A=a$

Initial amount with $B=b$

Initial amount Ratio of A, B and $C=a:b:100c$

C distributed the half of the amount equally between A and B then the ratio become $(a+25c):(b+25c):50c$

From the question,

$$(a+25c):(b+25c):50c=5:4:3$$

$$(a+25c)/50c=5/3$$

$$3a+75c=250c$$

$$3a=175c$$

$$a=175/3c$$

$$(b+25c)/50c=4/3$$

$$200c=3b+75c$$

$$3b=125c$$

$$b=125c/3$$

Initial amount Ratio of A, B and $C=a:b:100c$

$$175/3c:125c/3:100c$$

$$175:125:300 = 7:5:12$$

14. Answer: A

Distance=80km

Still water speed of boat $X=a$

Still water speed of boat $Y=b$

Speed of stream= w

Downstream speed of $X=a+w$

Upstream speed of $Y=b-w$

$$80/(b-w)-80/(a+w)=1/2$$

$$1/(b-w)-1/(a+w)=1/160$$

From ratio

$$a/(b-w)=5/6$$

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$$6a=5(b-w)$$

$$6a/5=(b-w)$$

$$1/(b-w)-1/(a+w)=1/160$$

$$5/6a-1/(a+w)=1/160$$

$$1/8 \text{ of distance}=1/8*80=10\text{km}$$

$$10/a=2$$

$$a=5\text{kmph}$$

$$5/30-1/(5+w)=1/160$$

$$W=95/77 \text{ kmph}$$

15. Answer: B

$$1/P + 1/Q = 1/15 \text{ ---- (i)}$$

$$1/Q + 1/R + 1/S = 1/12 \text{ ---- (ii)}$$

$$1/P + 1/R + 1/S = 1/10 \text{ ----- (iii)}$$

$$1/P + 1/Q + 1/T = 1/20 \text{ ---- (iv)}$$

From (i) and (iv)

$$1/15 + 1/T = 1/20$$

$$\Rightarrow 1/T = 1/20 - 1/15$$

$$\Rightarrow 1/T = (3 - 4)/60$$

$$\Rightarrow 1/T = -1/60 \text{ ----- (v)}$$

Equation (ii) + equation (iii) – equation (i)

$$\Rightarrow 1/Q + 1/R + 1/S + 1/P + 1/R + 1/S - 1/P - 1/Q = 1/12 + 1/10 - 1/15$$

$$\Rightarrow 2/R + 2/S = (5 + 6 - 4)/60$$

$$\Rightarrow 2 \times (1/R + 1/S) = 7/60$$

$$\Rightarrow 1/R + 1/S = 7/120 \text{ ----- (vi)}$$

From (iii) and (vi)

$$1/P + 7/120 = 1/10$$

$$\Rightarrow 1/P = 1/10 - 7/120$$

$$\Rightarrow 1/P = (12 - 7)/120$$

$$\Rightarrow 1/P = 5/120$$

$$\Rightarrow 1/P = 1/24$$

Let, the required time = n minutes

$$n \times (1/24 - 1/60) = 1/2$$

$$\Rightarrow n \times (5 - 2)/120 = 1/2$$

$$\Rightarrow n = 120/3 \times 1/2$$

$$\Rightarrow n = 20 \text{ minutes}$$

16. Answer: C

Let, the investment amount of Anuj, Vikram and Sunidhi be Rs.5x, Rs.3x and Rs.4x respectively.

Ratio of share in the profit:

$$\text{Anuj : Vikram : Sunidhi : Sushree} = [5x + (5x + 20000) \times 2] : [3x + (3x) \times 2 \times 2] : [(4x) \times 2 + (4x + 10000)] : (5x)$$

$$= (5x + 10x + 40000) : (3x + 12x) : (8x + 4x + 10000) : (5x)$$

$$= (15x + 40000) : 15x : (12x + 10000) : 5x \text{ ----- (i)}$$

According to the question

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$$(15x + 40000)/[(15x + 40000) + 15x + (12x + 10000) + 5x] \times 198000 = 68000$$

$$\Rightarrow (15x + 40000)/(47x + 50000) \times 99 = 34$$

$$\Rightarrow (15x + 40000) \times 99 = 34 \times (47x + 50000)$$

$$\Rightarrow 1485x + 3960000 = 1598x + 1700000$$

$$\Rightarrow 1598x - 1485x = 3960000 - 1700000$$

$$\Rightarrow 113x = 2260000$$

$$\Rightarrow x = 2260000/113$$

$$\Rightarrow x = \text{Rs.}20000$$

From equation (i)

$$\text{Anuj : Vikram : Sunidhi : Sushree} = (15 \times 20000 + 40000) : (15 \times 20000) : (12 \times 20000 + 10000) : (5 \times 20000)$$

$$= 340000 : 300000 : 250000 : 100000$$

$$= 34:30:25:10$$

$$\text{Share of Vikram in the profit} = 30/(34 + 30 + 25 + 10) \times 198000$$

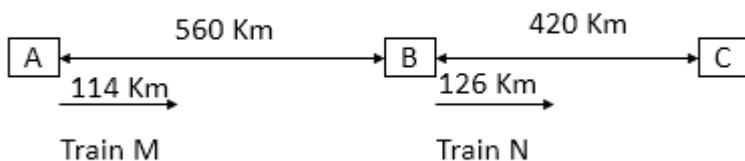
$$= 30/99 \times 198000$$

$$= \text{Rs.}60000$$

17. Answer: B

Distance travelled by train M in 3 hours = $38 \times 3 = 114$ Km

Distance travelled by train N in 3 hours = $42 \times 3 = 126$ Km



$$\text{Required distance} = 560 - 114 + 126 = 572 \text{ Km}$$

18. Answer: B

Let the ages of Asish and Sarita before four years be $8x$ years and $7x$ years respectively.

According to the question

$$(8x + 10)/(7x + 10) = 21/19$$

$$\Rightarrow 19 \times (8x + 10) = 21 \times (7x + 10)$$

$$\Rightarrow 152x + 190 = 147x + 210$$

$$\Rightarrow 152x - 147x = 210 - 190$$

$$\Rightarrow 5x = 20$$

$$\Rightarrow x = 20/5$$

$$\Rightarrow x = 4$$

Present age of Asish = $8x + 4 = 8 \times 4 + 4 = 36$ years

Present age of Sarita = $7x + 4 = 7 \times 4 + 4 = 32$ years

Let they got married before n years

According to the question

$$(36 - n)/(32 - n) = 15/13$$

$$\Rightarrow 13 \times (36 - n) = 15 \times (32 - n)$$

$$\Rightarrow 468 - 13n = 480 - 15n$$

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$$\Rightarrow 480 - 468 = 15n - 13n$$

$$\Rightarrow 2n = 12$$

$$\Rightarrow n = 6$$

$$\text{Present age of Sunidhi} = 28 + 6 = 34 \text{ years}$$

$$\text{Required percentage} = 34/32 \times 100 = 106.25\%$$

19. Answer: A

$$\text{MP} = \text{CP} + 500$$

$$(\text{CP} + 500) \times (100 - 8)/100 = \text{CP} \times (100 + 15)/100$$

$$\Rightarrow (\text{CP} + 500) \times 92/100 = \text{CP} \times 115/100$$

$$\Rightarrow \text{CP} \times (115 - 92)/100 = 500 \times 92/100$$

$$\Rightarrow \text{CP} \times 23/100 = 46000/100$$

$$\Rightarrow \text{CP} = 46000/23$$

$$\Rightarrow \text{CP} = \text{Rs.}2000$$

$$\text{MP} = 2000 + 500 = \text{Rs.}2500$$

$$\text{SP} = 2000 \times (100 + 15)/100$$

$$= 2000 \times 115/100$$

$$= \text{Rs.}2300$$

$$\text{Profit} = 2300 - 2000$$

$$= \text{Rs.}300$$

$$\text{Required percentage} = 300/2500 \times 100 = 12\%$$

20. Answer: a)

Explanation:

The share of Ashok, Karthi and Mahesh

$$[5x*1 + (5x + 15000)*2] : [4x*3] : [7x*2 + (7x + 12000)*1] = 30 : 20 : 37$$

$$\Rightarrow [5x + 10x + 30000] : 12x : [14x + 7x + 12000] = 30 : 20 : 37$$

$$\Rightarrow [15x + 30000] : 12x : [21x + 12000] = 30 : 20 : 37$$

According to the question,

$$\Rightarrow 12x/(21x + 12000) = 20/37$$

$$\Rightarrow 111x = 105x + 60000$$

$$\Rightarrow 6x = 60000$$

$$\Rightarrow x = 10000$$

$$\text{Initial investment of Karthi} = 4x = \text{Rs.} 40000$$

21. Answer: b)

Explanation:

C can empty the full tank in,

$$60\% \text{ of tank} = 15$$

$$\text{Full tank} = 15*(100/60) = 25 \text{ hours}$$

$$\text{A, B and C's one hour work} = 1/15 + 1/20 - 1/25 = 23/300$$

$$\text{(A, B and C)'s 8 hour work} = (23/300)*8 = 46/75$$

$$\text{Remaining work} = 1 - 46/75 = 29/75$$

$$\text{A and C's one day work} = 1/15 - 1/25 = (10-6)/(150) = 4/150$$

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$$= 2/75$$

According to the question,

$$(29/75) * (75/2) = 29/2 = 14 \frac{1}{2} \text{ hours}$$

The tank can be full in, $4 + 14 \frac{1}{2} = 18 \frac{1}{2}$ hours

22. Answer: b)

Explanation:

6 years ago, the ratio of the ages of Arun and Bharathi = 4 : 5 (4x, 5x)

Present ages of Arun and Bharathi = 4x + 6, 5x + 6

Present age of Ragu = (1/6)* Bharathi's present age + 10

Arun's present age = 36 - 6 = 30 years

According to the question,

$$4x + 6 = 30$$

$$4x = 24$$

$$x = 6$$

Bharathi's present age = 5x + 6 = 36

Ragu's present age = (1/6)*36 + 10 = 16

Required ratio = 36: 16 = 9: 4

23. Answer: c)

Explanation:

The area of the equilateral triangle = $196\sqrt{3}$ Sq cm

The area of the equilateral triangle = $(\sqrt{3}/4)*a^2$

$$(\sqrt{3}/4)*a^2 = 49\sqrt{3}$$

$$a^2 = 49*4$$

Side (a) = $7*2 = 14$ cm

Radius (r) = 14 cm

Circumference of the circle = $2\pi r = 2*(22/7)*14 = 88$ cm

24. Answer: c)

Explanation:

4 years ago, the ratio of ages of Rajiv and Ganga = 5: 4 (5x, 4x)

Present ages of Rajiv and Ganga = 5x + 4, 4x + 4

Vaishali = Rajiv - 3

Vaishali = Ganga + 2

Rajiv - 3 = Ganga + 2

$$5x + 4 - 3 = 4x + 4 + 2$$

$$5x + 1 = 4x + 6$$

$$x = 5$$

Present age of Rajiv = 29 years

Present age of Ganga = 24 years

The sum of the present age of Rajiv and Ganga = 29 + 24 = 53 years

25. Answer: a)

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Explanation:

Area of a circle = πr^2

$$1386 = (22/7) * r^2$$

$$1386 * (7/22) = r^2$$

$$r^2 = 441$$

$$r = 21 \text{ m}$$

$$\text{Circumference} = 2\pi r = 2 * (22/7) * 21 = 132 \text{ m}$$

$$\text{Perimeter of the rectangle} = 2 * 132 = 264 \text{ m}$$

$$264 = 2 * (l + 50)$$

$$132 = l + 50$$

$$l = 132 - 50$$

$$l = 82$$

$$\text{Area of the rectangle} = 82 * 50 = 4100 \text{ Sq m}$$

26. Answer: b)

Explanation:

The share of Ajay, Jega and Saaru

$$=> [40000 * 5 + 40000 * (3/4) * 7] : [60000 * 7 + 60000 * (1/3) * 5] : [45000 * 5]$$

$$=> 410000 : 520000 : 225000$$

$$=> 82 : 104 : 45$$

$$\text{Total profit} = \text{Rs. } 173250$$

$$231 \text{'s} = 173250$$

$$1 \text{'s} = 750$$

$$\text{The share of Jega} = 104 * 750 = \text{Rs. } 78000$$

27. Answer: d)

Explanation:

Let the number of clerks in the company be x,

$$1000 * 20 + 560 * x = 615 * (20 + x)$$

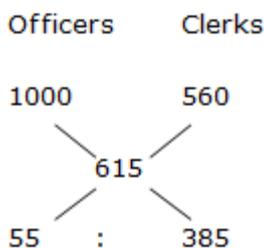
$$20000 + 560x = 12300 + 615x$$

$$7700 = 55x$$

$$X = 7700/55 = 140$$

$$\text{Total number of clerks in the company} = 140$$

Shortcuts:



$$=> 1 : 7$$

$$1 \text{'s} = 20$$

$$\text{Total number of clerks in the company} = 7 \text{'s} = 140$$

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28. Answer: c)

Explanation:

3 years ago, the ratio of age of A and B = 2: 3 (2x, 3x)

After 8 years, the sum of the ages of A and B = 97

$$\Rightarrow 2x + 11 + 3x + 11 = 97$$

$$\Rightarrow 5x + 22 = 97$$

$$\Rightarrow 5x = 75$$

$$\Rightarrow x = 15$$

The present age of A and B = $2x + 3$, $3x + 3 = 33, 48$

$$C = D + 5$$

$$C - D = 5 \text{ --- (1)}$$

The average of present ages of A, B, C and D = 45 years

The total present ages of A, B, C and D = $45 * 4 = 180$

$$\Rightarrow 33 + 48 + C + D = 180$$

$$\Rightarrow C + D = 180 - 81$$

$$\Rightarrow C + D = 99 \text{ -- (2)}$$

By solving of equation (1) and (2), we get

$$C = 52, D = 47$$

The present age of C and D = 52 years and 47 years

29. Answer: b)

Explanation:

Let the marked price be x,

According to the question,

$$x * (65/100) - X * (72/100) * (80/100) = 888$$

$$(13x/20) - (72x/125) = 888$$

$$(1625x - 1440x)/(125 * 20) = 888$$

$$185x/2500 = 888$$

$$X = 888 * (2500/185) = \text{Rs. } 12000$$

$$(125/100) * CP = 12000$$

$$CP = 12000 * (100/125) = \text{Rs. } 9600$$

30. Answer: c)

Explanation:

Speed of downstream = $28 + 12 = 40$ km/hr

Speed of upstream = $28 - 12 = 16$ km/hr

Total time = 27 hours

If distance between A to B is x, then distance between B to C = $x/2$,

Time = Distance/Speed

$$x/40 + (x/2)/16 = 27$$

$$x/40 + x/32 = 27$$

$$72x/(40 * 32) = 27$$

$$x = (27 * 40 * 32)/72 = 480 \text{ Km}$$

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The distance between A to B = 480 km

31. Answer: d)

Explanation:

Radius of the circular plot = 21 m

Area of the circular path = $5390/5 = 1078$

Area of the path = $\pi(r + x)^2 - \pi r^2$ (Here x is the width of the path)

$$\Rightarrow (22/7) [(21+x)^2 - 21^2]$$

$$\Rightarrow (22/7) [441 + 42x + x^2 - 441]$$

$$\Rightarrow (22/7) [42x + x^2]$$

$$(22/7) [42x + x^2] = 1078$$

$$42x + x^2 = 1078 * (7/22)$$

$$42x + x^2 = 343$$

$$x^2 + 42x - 343 = 0$$

$$(x+49)(x - 7) = 0$$

$$x = 7 \text{ meter}$$

The width of the path = 7 meter

32. Answer: c)

Explanation:

Let the sum be Rs. P,

$$[P * (1 + R/100)^2 - P] = 10368$$

$$[P * (1 + 16/100)^2 - P] = 10368$$

$$[P * (116/100)^2 - P] = 10368$$

$$P * [(29/25)^2 - 1] = 10368$$

$$P * [(841/625) - 1] = 10368$$

$$P * [216/625] = 10368$$

$$P = (10368 * 625) / 216 = \text{Rs. } 30000$$

$$SI = PNR/100$$

$$\Rightarrow (30000 * 8 * 4) / 100$$

$$\Rightarrow \text{Rs. } 9600$$

33. Answer: a)

Explanation:

The area of a rectangular plot = 432 sq cm

$$Lb = 432$$

$$\text{Length} = 3 * \text{Breadth}$$

$$3b * b = 432$$

$$3b^2 = 432$$

$$b^2 = 432/3 = 144$$

$$b = 12 \text{ cm}$$

$$l = 3 * 12 = 36 \text{ cm}$$

$$\text{Perimeter of the rectangle} = 2 * (l + b) = 2 * (36 + 12) = 96 \text{ cm}$$

The cost of fencing the plot = Rs. 8 per cm

$$\text{Total cost} = 96 * 8 = \text{Rs. } 768$$

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34. Answer: d)

Explanation:

The share of Aravind, Kathir and Mani

$$[5x*1 + (5x + 30000)*2] : [3x*3] : [2x*2 + (2x + 20000)*1] = 57 : 27 : 22$$

$$[5x + 10x + 60000] : [9x] : [4x + 2x + 20000] = 57 : 27 : 22$$

$$(15x + 60000) : (9x) : (6x + 20000) = 57 : 27 : 22$$

$$\Rightarrow (15x + 60000)/(9x) = (57/27)$$

$$\Rightarrow 15x + 60000 = 19x$$

$$\Rightarrow 4x = 60000$$

$$\Rightarrow x = 15000$$

Initial investment of Kathir = $3x = \text{Rs. } 45000$

35. Answer: b)

Explanation:

B is $6/5$ times as efficient as A. So,

A and B's work $\Rightarrow 6:5$

A can fill the $2/3$ of the tank in 24 min

$$\Rightarrow (2/3) * \text{work} = 24 \text{ min}$$

$$\Rightarrow \text{Whole work} = 36 \text{ min}$$

A takes 36 min to fill the tank, So, B takes,

$$\Rightarrow 6's = 36$$

$$\Rightarrow 1's = 6$$

B can fill the tank in, 30 min

B can fill the tank independently for 10 min only.

$$\text{B's } 10 \text{ min work} = 10/30 = 1/3$$

$$\text{Remaining} = 1 - 1/3 = 2/3$$

$(2/3)$ of the tank will remain incomplete.

36. Answer: C

Let A takes $3x$ days, B takes $4x$ days and C takes $6x$ days

Then Efficiency of A, B and C is $4x$, $3x$ and $2x$ unit/day

ATQ,

$$\text{Total work} = (A+C) \times 10 + (A + B) \times 15$$

$$= (4x + 2x) \times 10 + (4x+3x) \times 15$$

$$= 60x + 105x$$

$$= 165x \text{ units}$$

$$\text{Three day's work all of them} = (4x + 2x + 3x)$$

$$= 9x \text{ units}$$

$$\text{In total } 54 \text{ days} = (54/3) \times 9x = 162 \text{ unit}$$

$$\text{Remaining work done by A} = (165x - 162x)/4x$$

$$= 3/4 \text{ days}$$

$$\text{Total time} = 54 + 3/4 = 54(3/4) \text{ days}$$



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37. Answer: E

$$1\frac{1}{2} \text{ year} = 1.5 \text{ years}$$

$$R = (1012.5 \times 100) / (4500 \times 1.5)$$

$$R = 15\%$$

$$\begin{aligned} \text{Amount invested on C.I.} &= (4500 + 1012.5 + 87.5) \\ &= 5600 \text{ Rs.} \end{aligned}$$

$$\text{Two year C.I. on } (15+5)\%:$$

$$= 20 + 20 + (20 \times 20) / 100$$

$$= 44\%$$

$$\text{C.I.} = 5600 \times 44 / 100$$

$$= 2464 \text{ Rs.}$$

38. Answer: A

Let speed of train be x km/hr

In returning train takes 1 hr 20 minutes more

ATQ,

$$[576 / (x \times 3/4)] - 576/x = 4/3$$

$$(768 - 576)/x = 4/3$$

$$x = 144 \text{ km/hr}$$

Let length of train is L meters

$$144 \times 5/18 = (L + 600) / 21$$

$$L = 840 - 600$$

$$L = 240 \text{ meters}$$

Let train will cross an another train in t sec

$$(144 - 90) \times 5/18 = (240 + 180) / t$$

$$t = 420/15$$

$$t = 28 \text{ sec}$$

39. Answer: B

Gita : Sita : Mita

$$8000 * 4 \quad 12000 * 6 \quad 16000 * 8$$

$$+(8000 - 8000 \times 1/4) \times 8 \quad +(12000 + 12000 \times 1/6) \times 6 \quad +(16000 - 16000 \times 1/4) \times 4$$

$$80000 : 156000 : 176000$$

$$20 : 39 : 44$$

$$\text{Share of Gita} = 25750 \times 20 / ((20 + 39 + 44))$$

$$= 5000 \text{ Rs.}$$

40. Answer: D

Lets total sum = $7x$ Rs.

ATQ,

$$\text{Equivalent CI of two year on } 5\% = 5 + 5 + (5 \times 5) / 100 = 10.25\%$$

$$x \times (15 \times 3) / 100 - 4x \times 10.25 / 100 = 81.4$$

$$45x - 41x = 8140$$

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$$x = 8140/4$$

$$x = 2035$$

Total interest received by man from second part

$$\text{Equivalent CI of two year on 10\%} = 10 + 10 + (10 \times 10)/100 = 21\%$$

$$= 2035 \times 2 \times 21/100$$

$$= 854.7 \text{ Rs.}$$

41. Answer: B

Ankita complete 2/5th of tank = 48 days

Ankita complete whole task = $(48 \times 5)/2 = 120$ days

Ankita's husband can complete 3/5th of task = 96 days

Ankita's husband can complete whole task = $(96 \times 5)/3 = 160$ days

Total work = 480 unit

Ankita's efficiency = $480/120 = 4$ unit/day

Ankita's husband's efficiency = $480/160 = 3$ unit/day

Daughter efficiency = $3 \times 1/3 = 1$ unit/day

ATQ,

$$(4 + 3) \times x + (4 + 3 + 1) \times (x - 15) = 480$$

$$15x = 480 + 120$$

$$x = 40 \text{ days}$$

Required percentage of task complete by mother and son in $(x + 20)$ days

$$= [((40+20) \times (3+1))/240] \times 100$$

$$= [240/480] \times 100$$

$$= 50\%$$

42. Answer: C

ATQ,

$$\text{Vessel A} \times 75/100 = \text{Vessel B} \times 72/100$$

$$(x + 48) \times 75/100 = (x + 54) \times 72/100$$

$$75x - 72x = 3888 - 3600$$

$$x = 96 \text{ liters}$$

$$\text{Milk in vessel C} = (96 + 48) \times 25/100 \times 7/12 + (96 + 54) \times 28/100 \times 8/15$$

$$= 21 + 22.4$$

$$= 43.4 \text{ liters}$$

43. Answer: A

First vessel:

Fist vessel mixture = 60 litres

$$\text{Milk in the first vessel} = 70/100 \times 60 = 42$$

$$\text{Water in the first vessel} = 30/100 \times 60 = 18$$

After taken out the 15 litres of mixture,

$$\text{So the milk} = 42 - 15 \times 70/100 = 31.5$$

$$\text{Milk in the 15 litres} = 15 \times 42/60 = 10.5$$

$$\text{Water} = 18 - 15 \times 30/100 = 13.5$$

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Water in the 15 litres = $15 \times 18/60 = 4.5$

Second Vessel:

After adding 15 litres of mixture the quantity of milk in the second vessel = $40 \times 80/100 + 10.5 = 42.5$ litres

Water = $40 \times 20/100 + 4.5 = 12.5$ litres

Again the mixture taken out the second vessel and added to the first vessel

So the milk quantity = $31.5 + (15 \times 42.5)/55$

= $474/11$

Milk % = $((474/11)/60) \times 100 = 71(9/11)\%$

44. Answer: A

Let volume of the largest bucket = x

Volume the smallest bucket = $2x/5$

Volume of the second largest bucket = $2x/5 \times 120/100 = 12x/25$

Volume of the tank = $10 \times x + 8 \times 12x/25 + 6 \times 2x/5$

= $406x/25$

Required ratio = $12x/25 : 406x/25$

= $6:203$

45. Answer: D

Total number of students = 360

Students passed in all subjects = $1/9 \times 360 = 40$

Students failed in all the subjects = $1/6 \times 360 = 60$

Students passed at least one exam = $360 - 60 = 300$

Students passed only in subject A = $1/4 \times 300 = 75$.

Students passed in both A and B = $1/4 \times 360 = 90$

Students passed in both A and C = 50

Students passed in both A and B but not C = $90 - 40 = 50$

Students passed in both A and C but not B = $50 - 40 = 10$

Number of students passed in A = $75 + 10 + 50 + 40 = 175$

46. Answer: A

Prince:

Ends of the first year amount = $30000 + 30000 \times 10/100 = 33000$

And second year principal = $33000 + 10000 = 43000$

Second year = $43000 + 43000 \times 15/100 = 49450$

Third year principal = $49450 + 20550 = 70000$

Third year amount = $70000 + 70000 \times 5/100 = 73500$

Sonu:

Amount at the ends of third year = $50000 \times (1 + 15/100)^3$

= 76043.75

Difference = $76043.75 - 73500$

= 2543.75

47. Answer: A

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Total cost of 100 washing machine = $100 \times 15000 = 1500000$
Total selling price of 48 washing machine = $108/100 \times 1500000 = 1620000$
One washing machine rate = $1620000/48 = 33750$
Remaining one-four of washing machine = $(52 \times 1/2) \times (80/100 \times 33750)$
 $= 702000$
Remaining washing machine = $26 \times 70/100 \times 33750$
 $= 614250$
Total selling price = $1620000 + 702000 + 614250 = 2936250$
Total profit = $2936250 - 1500000 = 1436250$

48. Answer: A

According to the question,

When Renu is at 200 metres, Ringit is at 160 metres only.

(i.e) Time taken by Renu to complete 200 metres = Time taken by Ringit to complete 160 metres.

Then ratio of their speed = 200:160

= 5:4

Since Renu is able to run 400 meters in 40 seconds, the speed of Renu = $400/40 = 10$ metre per second

Thus speed of Ringit = $10 \times 4/5 = 8$ metre per second

Now, the time in which Ringit will complete the 200 metres race = $200/8 = 25$ seconds.

49. Answer: E

Given that, the length of the track = 800m Then time taken by both of them to meet = $800/(40-20) = 40$ sec

Then time taken to meet for 11th time = $40 \times 11 = 440$ sec

Thus total duration of the race = $7600/40 = 190$ sec

Since the total duration is at 190th second, 11th meeting is not possible.

50. Answer: E

Let the speed of R = x Then the speed of Q = 3x And the speed of P = 6x

Also let the time taken by P = y hours.

Now, ratio of speeds of P and R = Ratio of time taken by R and P

(i.e) $6x : x = 84 : y$

After solving this we have, $y = 14$ minutes.

Hence required distance = $[14/60] \times 120$

= 28 km.



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