

$$\text{Share of X in profit} = 6 \times 2400$$

$$\text{Share of X in profit} = 14,400$$

46. The students of a certain class collected Rs. 900, each student contributing as many rupees as there were students in the class. How much did each contribute? (PP)

Solution:

We can write it in equation form as follows:

$$x \times x = 900$$

$$x^2 = 900$$

$$x = 30$$

47. A two-digit number contains the smaller of two digits in the unit's place. The product of the digits is 24 and the difference between the digits is 5. Find the number? (PP)

- (A) 46
- (B) 38
- (C) 83
- (D) 72
- (E) 64

Solution:

Solving option (A):

$$\text{Product} = 4 \times 6 = 24, \quad \text{Difference} = 4 - 6 = -2$$

Solving option (B):

$$\text{Product} = 3 \times 8 = 24, \quad \text{Difference} = 3 - 8 = -5$$

Solving option (C):

$$\text{Product} = 8 \times 3 = 24, \quad \text{Difference} = 8 - 3 = 5$$

Solving option (D):

$$\text{Product} = 7 \times 2 = 14, \quad \text{Difference} = 7 - 2 = 5$$

Solving option (E):

$$\text{Product} = 6 \times 4 = 24, \quad \text{Difference} = 6 - 4 = 2$$

So, option (C) is correct.

48. Simplify: (PP)

$$\sqrt[3]{64}$$

Solution:

$$\sqrt[3]{64} = (64)^{\frac{1}{3}} = (4 \times 4 \times 4)^{\frac{1}{3}} = ((4)^3)^{\frac{1}{3}} = (4)^{3 \times \frac{1}{3}} = (4)^1 = 4$$

49. If a man takes two hours to row 7 km upstream and 15 km downstream, what is the speed of the current? (PP)

Solution:

Calculating man's speed during upstream period as follows:

$$\text{Upstream speed} = \frac{7}{2} = 3.5 \text{ km/hr}$$

Calculating man's speed during downstream period as follows:

$$\text{Downstream speed} = \frac{15}{2} = 7.5 \text{ km/hr}$$

Speed of the current can be calculated by their difference as follows:

$$\text{Speed of current} = \text{Downstream speed} - \text{Upstream speed}$$

$$\text{Speed of current} = 7.5 - 3.5$$

$$\text{Speed of current} = 4 \text{ km/hr}$$

50. A person covers 12 km at 3 km/hr, 18 km at 9 km/hr and 24 km at 4 km/hr.

Find the average speed in covering the whole distance? (PP)

Solution:

We know that:

$$\text{Time taken for the 1st patch} = \frac{\text{Distance}}{\text{Speed}} = \frac{12}{3} = 4 \text{ hours}$$

$$\text{Time taken for the 2nd patch} = \frac{\text{Distance}}{\text{Speed}} = \frac{18}{9} = 2 \text{ hours}$$

$$\text{Time taken for the 3rd patch} = \frac{\text{Distance}}{\text{Speed}} = \frac{24}{4} = 6 \text{ hours}$$

$$\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$$

$$\text{Average speed} = \frac{12 + 18 + 24}{4 + 2 + 6}$$

$$\text{Average speed} = \frac{54}{12}$$

$$\text{Average speed} = 4.5 \text{ km/hr}$$

51. A man crosses a street 600 m long in five minutes. Find his speed in km per hour? (PP)

Solution:

We know that:

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Speed} = \frac{600}{5} = 120 \text{ meter per minutes}$$

Now, we will do the conversion as follows:

$$\text{Speed} = \frac{120 \times 60}{1000} = \frac{7,200}{1,000}$$

$$\text{Speed} = 7.2 \text{ kilometer per hour}$$

52. Find the number when multiplied by 16 is increased by 240? (PP)

Solution:

$$x \times 16 = 16 + 240$$

$$x \times 16 = 256$$

$$x = \frac{256}{16} = 16$$

53. In a group of students, at a fast-food restaurant, 12 ate burgers and 9 had fries.

If 4 had both burgers and fries, how many had either burgers or fries? (PP)

Solution:

We know that:

$$\text{Both} = \text{Burger} + \text{Fries} - \text{Any of two}(B/F)$$

$$\text{Any of two}(B/F) = \text{Burger} + \text{Fries} - \text{Both}$$

$$\text{Any of two}(B/F) = 12 + 9 - 4$$

$$\text{Any of two}(B/F) = 17$$

54. A motorist travels 90 miles at rate of 20 miles per hour. If he returns the same distance at a rate of 40 miles per hour, what is the average speed for the entire trip, in miles per hour? (PP)

Solution:

Let average speed is "a", so:

$$\frac{90}{20} + \frac{90}{40} = \frac{180}{a}$$

$$\frac{180 + 90}{40} = \frac{180}{a}$$

$$\frac{270}{40} = \frac{180}{a}$$

$$\frac{27}{4} = \frac{180}{a}$$

$$a = \frac{180 \times 4}{27} = \frac{720}{27}$$

$$a = \frac{80}{3} \text{ miles per hour}$$

55. Five more than two third of number is 47. Find the number? (PP)

Solution:

$$5 + \frac{2}{3}x = 47$$

$$\frac{2}{3}x = 47 - 5 = 42$$

$$x = 42 \times \frac{3}{2}$$

$$x = 21 \times \frac{3}{1}$$

$$x = 63$$

56. The price of 100 kg rice is Rs. 90. If a person eats Rs. 27 of rice in a month, for how many persons 150 kg rice will be enough? (PP)

Solution:

Cost of 100 kg rice = 90 rupees

Cost of 1 kg rice = $\frac{90}{100}$ rupees

Cost of 150 kg rice = $\frac{90}{100} \times 150 = 135$ rupees

Number of persons = $\frac{\text{Total cost}}{\text{Cost per person}}$

Number of persons = $\frac{135}{27}$

Number of persons = 5

57. Three persons A, B and C divide Rs. 1,000 among themselves. The combine share of A and C is Rs. 400. The combine share of B and C is Rs. 700. Find the share of C? (PP)

Solution:

$$A + B + C = 1,000 \dots (1)$$

$$A + C = 400 \rightarrow A = 400 - C$$

$$B + C = 700 \rightarrow B = 700 - C$$

Substituting the value of A and B in equation (1), we get:

$$(400 - C) + (700 - C) + C = 1,000$$

$$400 - C + 700 - C + C = 1,000$$

$$400 + 700 - 1,000 = C$$

$$C = 100$$

58. If a car covers 180 km distance in 3 hours, then what will be the speed of car if it covers the same distance in 2.5 hours? (PP)

Solution:

We know that:

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Speed} = \frac{180}{3} = 60 \text{ km/hr}$$

These two quantities (speed and time) are inversely proportional to each other.

So:

$$(\text{Speed})_1 \times (\text{Time})_1 = (\text{Speed})_2 \times (\text{Time})_2$$

$$(\text{Speed})_2 = \frac{(\text{Speed})_1 \times (\text{Time})_1}{(\text{Time})_2}$$

$$(\text{Speed})_2 = \frac{60 \times 3}{2.5}$$

$$(\text{Speed})_2 = \frac{180}{2.5}$$

$$(\text{Speed})_2 = 72 \text{ km/hr}$$

59. Find the product of two numbers if their HCF is 7 and LCM is 105? (PP)

Solution:

We know that:

$$\text{Product of two numbers} = \text{HCF} \times \text{LCM}$$

Product of two numbers = 7×105

Product of two numbers = 735

60. Five added to the three times of a number and the number becomes 40. Find the number? (PP)

Solution:

$$5 + 3x = 40$$

$$3x = 40 - 5$$

$$3x = 35$$

$$x = \frac{35}{3} = 11\frac{2}{3}$$

61. A car covers the distance 200 km in 2 hours and 40 minutes. The other car covers the same distance in 2 hours. Find the ratio of their speeds? (PP)

Solution:

We know that:

$$(\text{Speed})_1 = \frac{\text{Distance}}{(\text{Time})_1} = \frac{200 \text{ km}}{2 \text{ hrs } 40 \text{ min}} = \frac{200 \text{ km}}{160 \text{ min}} = \frac{5}{4} \text{ km/min}$$

$$(\text{Speed})_2 = \frac{\text{Distance}}{(\text{Time})_2} = \frac{200 \text{ km}}{2 \text{ hrs}} = \frac{200 \text{ km}}{120 \text{ min}} = \frac{5}{3} \text{ km/min}$$

$$\text{Ratio} = \frac{(\text{Speed})_1}{(\text{Speed})_2} = \frac{5/4}{5/3} = \frac{5 \times 3}{5 \times 4} = \frac{3}{4}$$

62. Which number is subtracted from 2,569,451 to make divisible by 6? (PP)

Solution:

The division of 2,569,451 with 6 is shown in the above figure. As we have got a remainder of 5, hence the number 5 must be subtracted from 2,569,451 to make divisible by 6.

$$\begin{array}{r} 424,941 \\ 6 \overline{) 2,549,651} \\ \underline{2,549,646} \\ 5 \end{array}$$

63. The cost of two dozen of eggs is Rs. 96. Find the cost of an egg? (PP)

Solution:

Cost of two dozen eggs = 96 rupees

Cost of 24 eggs = 96 rupees

$$\text{Cost of 1 egg} = \frac{96}{24} \text{ rupees}$$

Cost of 1 egg = 4 rupees

64. In a small town, fifteen people own Ford and twelve people own Toyota. If eleven people own both Ford and Toyota, then how many people own either Ford or Toyota? (PP)

Solution:

We know that:

$$\text{Both} = F + T - \text{Either } F \text{ or } T$$

$$\text{Either } F \text{ or } T = F + T - \text{Both}$$

$$\text{Either } F \text{ or } T = 15 + 12 - 11$$

$$\text{Either } F \text{ or } T = 16$$

65. Three times the first of three consecutive odd numbers is three more than twice third number. Find the third number? (PP)

Solution:

Let the three consecutive odd numbers be x , $x + 2$ and $x + 4$, so:

$$3(x) = 2(x + 4) + 3$$

$$3x = 2x + 8 + 3$$

$$3x - 2x = 11$$

$$x = 11$$

We have to find the third number i.e., $x + 4$, so:

$$x + 4 = 11 + 4$$

Third Number = 15

66.If three-fourth of a centimeter equals one kilometer, then how many centimeters are there in 80 kilometers? (PP)

Solution:

$$\frac{3}{4} \text{ cm} = 1 \text{ km}$$

$$1 \text{ km} = \frac{3}{4} \text{ cm}$$

$$1 \times 80 \text{ km} = \frac{3}{4} \times 80 \text{ cm}$$

$$80 \text{ km} = \frac{3}{1} \times 20 \text{ cm}$$

$$80 \text{ km} = 60 \text{ cm}$$

67.Total votes casted to three men A, B and C are 150. Votes casted to A and C are 94 and votes casted to B and C are 76. Find the votes casted to C? (PP)

Solution:

$$A + B + C = 150 \dots (1)$$

$$A + C = 94 \dots (2)$$

$$B + C = 76 \dots (3)$$

Adding equation (2) and equation (3), we get:

$$A + C + B + C = 94 + 76$$

$$(A + B + C) + C = 170$$

$$150 + C = 170$$

$$C = 170 - 150 = 20$$

68.Sum of five consecutive positive even integers is 740. Find the largest number? (PP)

Solution:

$$(x) + (x + 2) + (x + 4) + (x + 6) + (x + 8) = 740$$

$$x + x + x + x + x + 2 + 4 + 6 + 8 = 740$$

$$5x + 20 = 740$$

$$5x = 740 - 20$$

$$5x = 720$$

$$x = 720/5 = 144$$

Largest number is $x + 8$, so:

$$\text{Largest number} = 144 + 8$$

$$\text{Largest number} = 152$$

69. A, B and C invest Rs. 34,000, Rs. 42,000 and Rs. 76,000 respectively in a business. At the end of the year, they make a profit of Rs. 375,000. What is the share of C in the profit? (PP)

Solution:

We know that:

$$\text{Share of C in profit} = \frac{\text{Investment of C}}{\text{Total investment}} \times \text{Total Profit}$$

$$\text{Share of C in profit} = \frac{76,000}{34,000 + 42,000 + 76,000} \times 375,000$$

$$\text{Share of C in profit} = \frac{76,000}{152,000} \times 375,000$$

$$\text{Share of C in profit} = \frac{1}{2} \times 375,000$$

$$\text{Share of C in profit} = 187,500$$

70. A number exceeds another number by 5. The sum of the numbers is 19. Find the smaller number? (PP)

Solution:

Let the two number be x and $x + 5$, so:

$$(x) + (x + 5) = 19$$

$$2x + 5 = 19$$

$$2x = 19 - 5 = 14$$

$$x = \frac{14}{2} = 7$$

We have to find the smaller number, and smaller number is x , so:

$$\text{Smaller number} = 7$$

71. A man travels a distance of 20 miles at 60 miles per hour and then returns over the same route at 40 miles per hour. What is the total time (in minutes) of his journey? (PP)

Solution:

We know that:

$$\text{Time taken for going} = \frac{\text{Distance}}{\text{Speed}} = \frac{20}{60} = \frac{1}{3} \text{ hours} = 20 \text{ minutes}$$

$$\text{Time taken for return} = \frac{\text{Distance}}{\text{Speed}} = \frac{20}{40} = \frac{1}{2} \text{ hours} = 30 \text{ minutes}$$

$$\text{Total time} = 20 + 30 = 50 \text{ minutes}$$

72. Find the greatest number which divides 2300 and 3500 leaving 32 and 56, respectively, as remainders? (PP)

Solution:

$$2300 - 32 = 2268$$

$$3500 - 56 = 3444$$

Now, we have to find the HCF of 2268 and 3444. The prime factors are:

$$2268 = 2 \times 2 \times 3 \times 3 \times 3 \times 3 \times 7$$

$$3444 = 2 \times 2 \times 3 \times 7 \times 41$$

$$\text{HCF} = 2 \times 2 \times 3 \times 7 = 84$$

73. All of the following are divisor of 140 except:

- (A) 3
- (B) 5
- (C) 10
- (D) 7

Solution:

Option (A) → $140/3 = 20.67$ → Not divisor

Option (B) → $140/5 = 28$ → Divisor

Option (C) → $140/10 = 14$ → Divisor

Option (D) → $140/7 = 20$ → Divisor

Hence, option A is correct.