Example 1

In a parking there are 800 cars in which 80% cars are Pakistani made. Find the number of Pakistani cars.

Solution:

Total number of cars = 800

Number of Pakistani cars = $\frac{80}{100}(800)$

= 640 cars

Example 2

In an aeroplane 400 passengers are board, in which 52% are Pakistani, 17% Chinese, 12% Iranies and rest of passengers are British

1. Find the passengers of each country.
2. What is the percentage of British people?

Solution:

Total number of passengers = 400

1) Pakistani passengers = $\frac{52}{100}(400)$

= 208 passengers

Chinese passengers = $\frac{17}{100}(400) = 68$

Iranian Passengers $= \frac{12}{100}(400)$

$= 48$ passengers

British passengers $= 400 - (208+68+48)$

$= 400 - 324 = 76$

2) Percentage of British passengers $= \frac{76}{400} \times 100$

$= 19\%$

Example 3

If $\frac{1}{8}$ is decreased by 25%, we get?

Solution:

25% of $\frac{1}{8}$ which is to subtracted from $\frac{1}{8}$

$= \frac{25}{100}(1/8)$

$= 1/32$

Now

$= \frac{1}{8} - \frac{1}{32}$

$= \frac{4-1}{32} = \frac{3}{32} = 0.09375$

Example 4

When 60 is subtracted from 60% of a number, the resulting number is 60, what is the

number?

Solution: Let the number be x

60% of the number $= \frac{60}{100}(x) = \frac{3}{5}x$

According to the given statement

$$\frac{3}{5}x - 60 = 60$$

$$\frac{3}{5}x = 60 + 60$$

$$\frac{3}{5}x = 120$$

$$3x = 120 \times 5$$

$$3x = 600 \Rightarrow x = 200$$

So the number is 200.

Example 5

A candidate who gets 30% of total votes polled, is defeated by 15000 votes. Find the number of votes of the winning candidate.

Solution: Let the total number of votes polled be x.

Defeated candidate's votes $= \frac{30}{100}(x)$

$$= \frac{3}{10}x$$

Winning candidate's votes $= x - \frac{3}{10}x$

$$= \frac{10x - 3x}{10} = \frac{7}{10}x$$

Difference of votes between winning and defeated candidates = 15000

Now

$$\frac{7}{10}x - \frac{3}{10}x = 15000$$

$$\frac{7x-3x}{10} = 15000$$

$$4x = 150000$$

$$x = \frac{150000}{4}$$

$$x = 37500 \text{ votes}$$

Votes of the winning candidate $= \frac{7}{10}(x)$

$= \frac{7}{10}(37500)$

$= 26250$ votes

Example 6

In a college examination, 52% of the candidates failed in mathematics and 42% failed in English. If 17% failed in both the subjects, then the percentage of the candidates who pass in both subjects is?

Solution:

Candidates failed in mathematics = 52%

Candidates failed in English = 42%

Candidates failed in both subjects = 17%.
Candidates passed in both subjects = ?
Candidates failed in at least one subject = (52% + 42%) - 17%
= 94% - 17%
= 77%
Candidates passed in both subjects
= 100% - 77%
= 23%

Example 7

Nadeem spends 30% of his income on food articles, 40% of the remaining on conveyance and clothes and saves 50% of the remaining. If his monthly salary is 18400 Rs, how much money does he save every month?

Solution:

Total income of Nadeem = 18400 Rs
Expenditure on food articles = $\frac{30}{100}$ (18400)
= 5520 Rs
Remaining amount = 18400 - 5520
= 12880 Rs

40% of remaining expenditure on conveyance and clothes = $\frac{40}{100}$ (12880)

= 5152 Rs

Now Remaining amount = 12880 - 5152

= 7728 Rs

Saves 50% of the remaining = $\frac{50}{100}$ (7728)

= $\frac{7728}{2}$

= 3864 Rs

Nadeem saves 3864 Rs every month.

Example 8

A man buys 5 kg of meat at Rs 500/kg. In addition, for every kilogram of meat purchased, he has to pay a consumption tax of 6% on the selling price. Calculate the total amount of money that he has to pay.

Solution:

Price of 1 kg of meat = 500 Rs

Price of 5 kg of meat = 5 × 500 = 2500

As he has to pay 6% tax on price, the amount of money to be

be paid $= 2500 + \frac{6}{100}(2500)$

$= 2500 + 150$

$= 2650$ Rs

More Practice Problems

Question 1: When 40% of a number is added to 42, the result is the number itself. Find the number.

Solution:

Let the number be x

According to the given statement,

$$42 + \frac{40}{100}(x) = x$$

$$42 + \frac{2}{5}x = x$$

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

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

$$3x = 210$$

$$x = 70$$

Question 2: A metal bar weighs 8.15 ounces. 93% of the bar is silver, how many of the silver are in the bar?

Solution:

Total weight of metal bar = 8.15 ounces

Silver in the metal bar = $\frac{93}{100}(8.15)$

$= \frac{757.95}{100}$

$= 7.57$ ounces

Question 3: 15 liter of a mixture contains 20% alcohol and the rest is water. If 3 liters of water be mixed in it, what is the percentage of alcohol in the new solution?

Solution:

Number of liters of mixture = 15 liters

As mixture contain 20% alcohol = $\frac{\cancel{20}}{\cancel{100}_{5}}(\cancel{15}^{3})$

$= 3$ liters

Water in the mixture = 15 - 3 = 12 liters

When 3 liters of water is mixed in the original mixture, the new mixture = 15 + 3 = 18 liters

%age of alcohol in the new solution = $\frac{\text{alcohol}}{\text{New mixture}} \times 100$

$= \frac{3}{\cancel{18}_{3}} \times \cancel{100}^{50}$

$= 16\frac{2}{3}\%$

Question 4: A student earned a grade of 80% in math that had 20 problems. How many problems in that test did the student answer correctly?

Solution:

Total problems in math = 20

Problems that student answered correctly $= \frac{80}{100}(20)$

$= 16$ problems

Question 5: 1 kg of tea and 4kg of sugar cost Rs 35, but if sugar rises by 50% and tea 10% they would cost Rs 42.50. Find the price per kg of sugar.

Solution:

Let the tea and sugar be x and y respectively. Then

$x + 4y = 35 \longrightarrow (1)$

50% rise in sugar price $= \frac{80}{100}(4y) + 4y$

$= 6y$

10% rise in sugar price $= \frac{10}{100}(x) + x$

$= \frac{11}{10}x$

(10)

As given, the rise in sugar and tea price would cost Rs 42.50, so

$$\frac{11}{10}x + 6y = 42.50$$

$$\frac{11x + 60y}{10} = 42.50$$

$$11x + 60y = 425 \longrightarrow (2)$$

Solution:

Multiplying equ. (1) with 11 and subtracting it from equ. (2), we get

$$11x + 60y = 425$$
$$-11x \pm 44y = -385$$
$$16y = 40$$

$$y = \frac{40}{16}^{5}_{2}$$

$$y = 5/2$$

$$y = 2.5 \text{ Rs}$$

The price per kg of sugar is 2.5 Rs.

Solution: