Exercise 12.1

Question 1: Write each of the following as percent:

1) $\frac{7}{25}$

$= \frac{7}{25} \times 100$

$= 28\%$

2) $\frac{14}{265}$

$= \frac{14}{625} \times 100$

$= 2.24\%$

3) $\frac{5}{8}$

$= \frac{5}{8} \times 100$

$= 62.5\%$

4) 0.8

$= 0.8 (100)$

$= 80\%$

5) 0.005

$= 0.005(100)$

$= 0.5\%$

6) 3:25

$$\frac{3}{25}$$

$$= \frac{3}{25} \times 100$$

$$= 12\%$$

7) 11:80

$$= \frac{11}{80}$$

$$= \frac{11}{80} \times 100$$

$$= 13.75\%$$

8) 111:125

$$= \frac{111}{125}$$

$$= \frac{111}{125} \times 100$$

$$= 88.8\%$$

9) 13:75

$$= \frac{13}{75}$$

$$= \frac{13}{75} \times 100$$

$$= 17.33\%$$

10) 15:16

$$= \frac{15}{16}$$

$$= \frac{15}{16} \times 100$$

$$= 93.75\%$$

11) 0.18

= 0.18(100)

= 18%

12) $\frac{7}{125}$

= $\frac{7}{125} \times 100$

= 5.6%

Question 2: Convert the following percentages to fractions and ratios:

1) 25%

= $\frac{25}{100}$

= $\frac{5}{20}$

= $\frac{1}{4}$

= 1:4

2) 2.5%

= $\frac{25}{1000}$

= $\frac{5}{200}$

= $\frac{1}{40}$

= 1:40

3) 0.3%

$= \frac{0.3}{100}$

$= \frac{3}{1000}$

= 3:1000

4) 125%

$= \frac{125}{100}$

$= \frac{5}{4}$

= 5:4

Question 3: Express the following as decimal fractions:

1) 27%

$= \frac{27}{100}$

= 0.27

2) 6.3%

$= \frac{6.3}{100}$

= 0.063

3) 32%

$= \frac{32}{100}$

$= 0.32$

4) 0.25

$= \frac{0.25}{100}$

$= 0.0025$

5) 7.5 %

$= \frac{7.5}{100}$

$= 0.075$

6) $\frac{1}{8}$ %

$= \frac{1}{800}$

$= 0.00125$

Exercise 12.2

Question 1

1) 22% of 120

$= \frac{22}{100} \times 120$

$= 26.4$

2) 25% of 1000

$= \frac{25}{100} \times 1000$

$= 250$

3) 25% of 10 kg

$= \frac{25}{100} \times 10$

= 2.5 kg

4) 16.5 % of 5000 metre

$= \frac{16.5}{100} \times 5000$

= 825 metre

5) 135 % of 80 cm

$= \frac{135}{100} \times 80$

= 108 cm.

6) 2.5 % of 10000 ml

$= \frac{2.5}{100} \times 10000$

= 250 ml

Question 2

1) Find the number a , if :

8.4% of a is 42

$= \frac{8.4}{100} \times a = 42$

$= a = \frac{42 \times 100}{8.4}$

= a= 500

2) 0.5% of a is 3

$= \frac{0.5}{100} \times a = 3$

$= a = \frac{3 \times 100}{0.5}$

= a= 600

3) $\frac{1}{2}$ % of a is 50

= $\frac{1}{200}$ × $a = 50$

= $a = \frac{50 \times 200}{1}$

= a= 10000

4) 100% of a is 100

= $\frac{100}{100}$ × $a = 100$

= $a = \frac{100 \times 100}{100}$

= a= 100

Question 3

X is 5% of y, y is 24% of z. if x = 480, find the values of y and z.

Solution

Given,

= x is 5% of y

= X= $\frac{5}{100}$ y

= y= $\frac{100}{5}$ x

= y = 20 x

= y = 20(480)

= y = 9600

Also given,

= y is 24% of z

= y= $\frac{24}{100}$ z

= z= $\frac{100}{24}$ y

= z = $\frac{100}{24}$ × 9600

= z = 40000

Question 4

A coolie deposits Rs.150 per month in his post office savings bank account. If this is 15% of this monthly income, find his monthly income.

Solution

Let his monthly income be x

According to the question,

= 15 % of x = 150

= $\frac{15}{100} \times x = 150$

= X=a = $\frac{150 \times 100}{15}$

= x= 1000

His monthly income is Rs.1000

Question 5

Asha got 86.875 % marks in the annual examination. If she got 695 marks, find the total number of marks of the examination.

Solution

Let x be the total number of marks in the examination

According to the question,

= 86.875% of x = 695

= $\frac{86.875}{100} \times x = 695$

= $x = \frac{695 \times 100}{86.875}$

= 800

The total number of marks in the examination is 800.

Question 6

Deepti went to school for 216 days in a full year. If her attendance is 90%, find her number of days on which the school was opened?

Solution

Let the school was opened for x days

According to the question,

$= 90 \% \text{ of } x = 216$

$= \frac{90}{100} \times x = 216$

$= x = \frac{216 \times 100}{90}$

= x= 240 days

The school was opened for 240 days in the given year .

Question 7

A garden has 2000 trees. 12% of these are mango trees, 18% are lemon and the rest are orange trees. Find the number of orange trees?

Solution

Let the number of orange trees be x

There are total 2000 trees.

According to the question,

12% of total trees are mango

Number of mango trees = 12% of 2000

$= \frac{12}{100} \times 2000$

$= a = \frac{12 \times 20}{1}$

= 240

Number of lemon trees = 18% of 2000

$= \frac{18}{100} \times 2000$

$= a = \frac{18 \times 20}{1}$

$= 360$

Number of orange trees = (2000-240-360)

=1400

Number of orange trees are 1400.

Question 8

Balanced diet should contain 12% of proteins, 25% of fats and 63% of carbohydrates. If a child needs 2600 calories in this food daily, find in calories the amount of each of these in his daily food intake?

Solution

In a balanced diet of 2600 calories

12 % protein. Amount of protein intake = 12% of 2600 = $\frac{12}{100} \times 2600$ = 312 calories

25 % fats. Amount of fats intake = 25% of 2600 = $\frac{25}{100} \times 2600$ = 650 calorie

Amount of carbohydrates intake = 2600-(315+650) = 1638 calories

Question 9

A cricketer diet scored a total of 62 runs in 96 balls. He hit 3 sixes, 8 fours, 2 twos and 8 singles. What is the percentage of total runs came in:

1) Sixes

The cricketer hits 3 sixes = 3(6) = 18

$= \frac{18}{62} \times 100$

$= 29.03\%$

2) Fours

The cricketer hits 8 four = 8(4) = 32

$$= \frac{32}{62} \times 100$$

$$= 51.61\%$$

3) Twos

The cricketer hits 2 twos = 2(2) = 4

$$= \frac{4}{62} \times 100$$

$$= 6.45\%$$

4) Singles

The cricketer hits 8 singles = 8(1) = 8

$$= \frac{8}{62} \times 100$$

$$= 12.90$$

Question 10

A cricketer hits 120 runs in 150 balls during a test match. 20% of the runs came in 6's. 30% in 4's. 25% in 2's. And rest in 1's. How many rubs did he score in?

Solution

Let us assume the cricketer scored w runs in 6's.

20% of 120 = w

= w = 24

Let us assume the cricketer scored x runs in 4's.

30% of 120 = x

= x = 36

Let us assume the cricketer scored w runs in 2's.

25% of 120 = y

= y = 30

Let us assume the cricketer scored z runs in 1's.

24+36+30+z = 120

= z = 30

The cricketer scored 30 runs by taking singles.

Question 11

Radha earns 22% of her investment. If she earns Rs. 187, then how much did she invest?

Solution

Let the investment be Rs. x

According to the question

22% of x = 187

$= \frac{22}{100} \times x = 187$

$= X = \frac{187 \times 100}{22}$

= x= 850

Radha invested Rs. 850

Question 12

Rohit deposits 12% of his income in a bank. He deposited Rs. 1440 in the bank during 1997. What was his total income for the year 1997?

Solution

Let the total income of the year 1997 be Rs .x

According to the question,

12% of x =1440

$= \frac{12}{100} \times x = 1440$

$= X = \frac{1440 \times 100}{12}$

= x= 12000

Rohit's total income during 1997 is Rs.12, 000.

Question 13

Gun powder contains 75% nitre and 10% sulphur. Find the amount of the gun powder which carries 9 kg of nitre . What amount of gun powder would contain 2.3 kg of sulphur?

Solution

Let the amount of gun powder that contains 9 kg nitre be x kg

$= \frac{75}{100} \times x = 9$

$= X = \frac{9 \times 100}{75}$

= x= 12 kg

Let the amount of gun powder that contains 2.3 kg sulphur be y kg

$= \frac{25}{100} \times y = 2.3$

$= X = \frac{2.3 \times 100}{2.3}$

= x= 23 kg

The amount of gun powder containing 2.3 kg sulphur is 23 kg.

Question 14

An alloy of tin and copper consists of 15 parts of tin and 105 parts of copper. Find the percentage of copper in the alloy?

Solution

Composition of the alloy = 15 parts if tin + 105 parts of copper

Therefore, percentage of tin = Let the amount of gun powder that contains 9 kg nitre be x kg

$= \frac{15}{120} \times 100$

= x = 12.5%

Percentage of copper =

$= \frac{105}{120} \times 100$

= y = 87.5%

The percentage of copper is 87.5%

Question 15

An alloy contains 32% of copper, 40% of nickel and rest zinc. Find the mass of the zinc in 1 kg of alloy?

Solution

Percentage of copper in the alloy = 32%

Percentage of nickel in the alloy = 40%

Percentage of zinc in the alloy = 100-(32+40) = 28%

Amount of zinc in 1 kg of alloy = 0.28(1) = 280 gm

The mass of zinc in 1 kg of the alloy is 280 gm.

Question 16

A motorist travelled 122 kilometres before his first stop. If he had 10% of his journey to complete at this point, how long was the total ride?

Solution

Let the length of the total ride be x km

According to the question

10% of x = 122

$= x = \frac{122 \times 100}{10}$

= x = 1220 km

The total length of the total ride is 1220 km .

Question 17

A certain school has 30 students, 142 of whom are boys. It has 30 teachers, 12 of which are men. What percent of total number of students and teachers in the school is female?

Solution

Total number of female students = 300-142 = 158

Number of female teachers = 30-12 = 18

To tal number of females = 158+18 = 176

Total population of the school = 300+30 = 330

Percentage of teacher in the school is female is = $\frac{176}{330} \times 100$

= 53.33%

The percentage of total number of students and teachers in the school is female is 53.33%

Question 18

Aman's income is 20% less than that of anil. How much present is anil's income more than aman's?

Solution

Let anil's income be x

Then , aman's income = $(x - 20)100 = 8 \times 10$

Difference in the incomes of anil and aman to that of aman's income

= $\frac{2 \times 10}{8 \times 10} \times 100$

= 25%

Anil's income is 25% more than that of aman's.

Question 19

The value of the machine depreciates every year by 5%. If the present value of the machine is Rs.100000, what will be it's value after 2 years?

Solution

It is given that the value of the machine depreciates by 5% every year. Present value of the machine = Rs.100000

Therefore, 5% of 100000 = Rs.5000

Value of the machine after 1st year = Rs (100000-5000)

= Rs. 95000

5 % of 95000 = Rs.4750

Value of the machine in the 2nd year =Rs (95000-4750)

= Rs 90250

After two years, the value of the machine will be Rs.90250

Question 20

The population of the town increased by 10% annually. If the present population is 60000, what will be its population after 2 years?

Solution

Present population = 60000

It increases 10% annually

Increase in the population in the first year = 60000+6000 = 66000

66000 is the increase in the population in the second year = 10% of 66000 = 6600

Thus population after 2 years = 66000+6600 = 72600

The population of the town after 2 years is 72600.

Question 21

The population of the town is increased by 10% annually. If the present population is 22000, find the population a year ago.

Solution

Let the population of the town one year ago be x

Now, it is given that population of the town increases by 10%

Present population = x+10% of x

$= x + \frac{10}{100}x$

$= \frac{110}{100}x$

But present population of the town = 22000

According to the question,

$\frac{10}{100}x = 22000$

$= x = 20000$

The population of the town a year ago is 20000.

Question 22

Ankit was given an increment of 10% on his salary. His new salary is Rs. 3575 . what was his salary before investment?

Solution

Let the initial salary be Rs.x

We know that salary

Before increment + increment given on salary = new salary

$= x + 10\%$ of $x = 3575$

$= \frac{110}{100}x = 3575$

$= x = 3250$

Salary before increment is Rs.3250

Question 23

In new budget, the price of the petrol rose by 10%. By how much percent must one reduce the consumption so that the expenditure does not increase?

Solution

We have to reduce the consumption such that the expenditure does not increase.

For this, we use the following formula:

$$= r + \frac{10}{100} r$$

$$= \frac{110}{100} x$$

Where r is the percentage rise in the price of the commodity.

Therefore, percentage reduction in the consumption = 9111

Question 24

Mohan's income is Rs.15500 per month. He saves 11% of his income. If his income is increased by 10% , then he reduces his saving by 1%, how much does he save now?

Solution

Mohan's saving = 11% of 15500

$$= \frac{11}{100} \times 15500$$

= Rs. 1705

It is given that Mohan's income increases by 10%

Therefore, increase in income = $\frac{10}{100} \times 15500$

= Rs 1550

Now, percentage of saving = (11-1) % = 10%

Saving

$= \frac{10}{100} \times 17050$

Thus, the amounts of his present and earlier savings are the same

Question 25

Shikha's income is 60% more than that of shalu. What percent is shalu's income less than shikha's?

Solution

Let shalu's income be Rs.x

Shikha's income = Rsx+60% of x

$= \frac{160}{100} x$

Difference in the incomes of shikha and shalu

$= \frac{16}{10} x - \frac{16}{100} x$

$= Rs \frac{6}{10} x$

Percentage of the difference in the incomes of shikha and shalu to that of shikha's income= 37.5%

Question 26

Rs.3500 is to be shared among three people so that the first person gets 50% of the second , who in turn gets 50% of the third. How much will each other of them get?

Solution

Let x, y, z be the the amounts received by the first, second, third person respectively.

We have,

X= 50% of y

$= \frac{50}{100} y = 12y$

= y= 2x

Again, y = 50% of z

= z = 12 z

Therefore, z= 2y=4x

= x+y+z =3500

Substituting the value of z and y we get,

= x+2x+4x = 3500

= 7x = 3500

= x= 500

= y=2x = 1000

=z= 4x = 2000

The amount received by three persons are 500, 1000 and 2000 respectively.

Question 27

After a 20% hike , the cost of Chinese vase is Rs2000. What was the original price of the object?

Solution

Let the original price of the object be Rs. x

According to the question,

We have 20% of x+x = 2000

$= \frac{20}{100} x + x = 2000$

$= \frac{120}{100} x = 2000$

= x = 1666.67

The original price of the object is Rs.1666.67.

Exercise 12.2

Question 1:

1) 22% of 120

$= \frac{22}{100} \times 120 = 26.4$

2) 25% of 1000

$= \frac{25}{100} \times 1000 = 250$

3) 25% of 10 kg

$= \frac{25}{100} \times 10 = 2.5 \text{ kg}$

4) 16.5 % of 5000 metre

$= \frac{16.5}{100} \times 5000 = 825 \text{ metre}$

5) 135 % of 80 cm

$= \frac{135}{100} \times 80 = 108 \text{ cm.}$

6) 2.5 % of 10000 ml

$= \frac{2.5}{100} \times 10000 = 250 \text{ ml}$

Question 2:

1) Find the number a , if :

8.4% of a is 42

$= \frac{8.4}{100} \times a = 42$

$= a = \frac{42 \times 100}{8.4}$

= a= 500

2) 0.5% of a is 3

$= \frac{0.5}{100} \times a = 3$

$= a = \frac{3 \times 100}{0.5}$

= a= 600

3) $\frac{1}{2}$ % of a is 50

$= \frac{1}{200} \times a = 50$

$= a = \frac{50 \times 200}{1}$

= a= 10000

4) 100% of a is 100

$= \frac{100}{100} \times a = 100$

$= a = \frac{100 \times 100}{100}$

= a= 100

Question 3:

X is 5% of y, y is 24% of z. if x = 480, find the values of y and z.

Solution

Given,

= x is 5% of y

$= x = \frac{5}{100} y$

$= y = \frac{100}{5} x$

$= y = 20 x$

$= y = 20(480)$

$= y = 9600$

Also given,

= y is 24% of z

$= y = \frac{24}{100} z$

$= z = \frac{100}{24} y$

$= z = \frac{100}{24} \times 9600$

$= z = 40000$

Question 4

A coolie deposits Rs.150 per month in his post office savings bank account. If this is 15% of this monthly income, find his monthly income.

Solution

Let his monthly income be x

According to the question,

$= 15 \% \text{ of } x = 150$

$= \frac{15}{100} \times x = 150$

$= X = a = \frac{150 \times 100}{15}$

$= x = 1000$

His monthly income is Rs.1000

Question 5

Asha got 86.875 % marks in the annual examination. If she got 695 marks, find the total number of marks of the examination.

Solution

Let x be the total number of marks in the examination

According to the question,

$= 86.875\% \text{ of } x = 695$

$= \frac{86.875}{100} \times x = 695$

$= x = \frac{695 \times 100}{86.875}$

$= 800$

The total number of marks in the examination is 800.

Question 6

Deepti went to school for 216 days in a full year. If her attendance is 90%, find her number of days on which the school was opened?

Solution

Let the school was opened for x days

According to the question,

$= 90 \% \text{ of } x = 216$

$$= \frac{90}{100} \times x = 216$$

$$= x = \frac{216 \times 100}{90}$$

= x= 240 days

The school was opened for 240 days in the given year.

Question 7

A garden has 2000 trees. 12% of these are mango trees, 18% are lemon and the rest are orange trees. Find the number of orange trees?

Solution

Let the number of orange trees be x

There are total 2000 trees.

According to the question,

12% of total trees are mango

Number of mango trees = 12% of 2000

$$= \frac{12}{100} \times 2000$$

$$= a = \frac{12 \times 20}{1}$$

= 240

Number of lemon trees = 18% of 2000

$$= \frac{18}{100} \times 2000$$

$$= a = \frac{18 \times 20}{1}$$

= 360

Number of orange trees = (2000-240-360)

=1400

Number of orange trees are 1400.

Question 8

Balanced diet should contain 12% of proteins, 25% of fats and 63% of carbohydrates. If a child needs 2600 calories in this food daily, find in calories the amount of each of these in his daily food intake?

Solution

In a balanced diet of 2600 calories

12 % protein. Amount of protein intake = 12% of 2600 = $\frac{12}{100} \times 2600$ = 312 calories

25 % fats. Amount of fats intake = 25% of 2600 = $\frac{25}{100} \times 2600$ = 650 calorie

Amount of carbohydrates intake = 2600-(315+650) = 1638 calories

Question 9

A cricketer diet scored a total of 62 runs in 96 balls. He hit 3 sixes, 8 fours, 2 twos and 8 singles. What is the percentage of total runs came in:

1) Sixes

The cricketer hits 3 sixes = 3(6) = 18

$= \frac{18}{62} \times 100$

= 29.03%

2) Fours

The cricketer hits 8 four = 8(4) = 32

$= \frac{32}{62} \times 100$

= 51.61%

3) Twos

The cricketer hits 2 twos = 2(2) = 4

$= \frac{4}{62} \times 100$

= 6.45%

4) Singles

The cricketer hits 8 singles = 8(1) = 8

$= \frac{8}{62} \times 100$

= 12.90

Question 10

A cricketer hits 120 runs in 150 balls during a test match. 20% of the runs came in 6's. 30% in 4's. 25% in 2's. And rest in 1's. How many rubs did he score in?

Solution

Let us assume the cricketer scored w runs in 6's.

20% of 120 = w

= w = 24

Let us assume the cricketer scored x runs in 4's.

30% of 120 = x

= x = 36

Let us assume the cricketer scored w runs in 2's.

25% of 120 = y

= y = 30

Let us assume the cricketer scored z runs in 1's.

24+36+30+z = 120

= z = 30

The cricketer scored 30 runs by taking singles.

Question 11

Radha earns 22% of her investment. If she earns Rs. 187, then how much did she invest?

Solution

Let the investment be Rs. x

According to the question

22% of x = 187

$= \frac{22}{100} \times x = 187$

$= x = \frac{187 \times 100}{22}$

= x= 850

Radha invested Rs. 850

Question 12

Rohit deposits 12% of his income in a bank. He deposited Rs. 1440 in the bank during 1997. What was his total income for the year 1997?

Solution

Let the total income of the year 1997 be Rs .x

According to the question,

12% of x =1440

$= \frac{12}{100} \times x = 1440$

$= x = \frac{1440 \times 100}{12}$

= x= 12000

Rohit's total income during 1997 is Rs.12, 000.

Question 13

Gun powder contains 75% nitre and 10% sulphur. Find the amount of the gun powder which carries 9 kg of nitre . What amount of gun powder would contain 2.3 kg of sulphur?

Solution

Let the amount of gun powder that contains 9 kg nitre be x kg

$= \frac{75}{100} \times x = 9$

$= X = \frac{9 \times 100}{75}$

$= x= 12$ kg

Let the amount of gun powder that contains 2.3 kg sulphur be y kg

$= \frac{25}{100} \times y = 2.3$

$= X = \frac{2.3 \times 100}{2.3}$

$= x= 23$ kg

The amount of gun powder containing 2.3 kg sulphur is 23 kg.

Question 14

An alloy of tin and copper consists of 15 parts of tin and 105 parts of copper. Find the percentage of copper in the alloy?

Solution

Composition of the alloy = 15 parts if tin + 105 parts of copper

Therefore, percentage of tin = Let the amount of gun powder that contains 9 kg nitre be x kg

$= \frac{15}{120} \times 100$

$= x = 12.5\%$

Percentage of copper =

$= \frac{105}{120} \times 100$

$= y = 87.5\%$

The percentage of copper is 87.5%

Question 15

An alloy contains 32% of copper, 40% of nickel and rest zinc. Find the mass of the zinc in 1 kg of alloy?

Solution

Percentage of copper in the alloy = 32%

Percentage of nickel in the alloy = 40%

Percentage of zinc in the alloy = 100-(32+40) = 28%

Amount of zinc in 1 kg of alloy = 0.28(1) = 280 gm

The mass of zinc in 1 kg of the alloy is 280 gm.

Question 16

A motorist travelled 122 kilometres before his first stop. If he had 10% of his journey to complete at this point, how long was the total ride?

Solution

Let the length of the total ride be x km

According to the question

10% of x = 122

$=X = \frac{122 \times 100}{10}$

$= x = 1220$ km

The total length of the total ride is 1220 km .

Question 17

A certain school has 30 students, 142 of whom are boys. It has 30 teachers, 12 of which are men. What percent of total number of students and teachers in the school is female?

Solution

Total number of female students = 300-142 = 158

Number of female teachers = 30-12 = 18

To tal number of females = 158+18 = 176

Total population of the school = 300+30 = 330

Percentage of teacher in the school is female is = $\frac{176}{330} \times 100$

= 53.33%

The percentage of total number of students and teachers in the school is female is 53.33%

Question 18

Aman's income is 20% less than that of anil. How much present is anil's income more than aman's?

Solution

Let anil's income be x

Then , aman's income = $(x - 20)100 = 8 \times 10$

Difference in the incomes of anil and aman to that of aman's income

= $\frac{2 \times 10}{8 \times 10} \times 100$

= 25%

Anil's income is 25% more than that of aman's.

Question 19

The value of the machine depreciates every year by 5%. If the present value of the machine is Rs.100000, what will be it's value after 2 years?

Solution

It is given that the value of the machine depreciates by 5% every year. Present value of the machine = Rs.100000

Therefore, 5% of 100000 = Rs.5000

Value of the machine after 1st year = Rs (100000-5000)

= Rs. 95000

5 % of 95000 = Rs.4750

Value of the machine in the 2nd year =Rs (95000-4750)

= Rs 90250

After two years, the value of the machine will be Rs.90250

Question 20

The population of the town increased by 10% annually. If the present population is 60000, what will be its population after 2 years?

Solution

Present population = 60000

It increases 10% annually

Increase in the population in the first year = 60000+6000 = 66000

66000 is the increase in the population in the second year = 10% of 66000 = 6600

Thus population after 2 years = 66000+6600 = 72600

The population of the town after 2 years is 72600.

Question 21

The population of the town is increased by 10% annually. If the present population is 22000, find the population a year ago.

Solution

Let the population of the town one year ago be x

Now, it is given that population of the town increases by 10%

Present population = x+10% of x

$= x + \frac{10}{100}x$

$= \frac{110}{100}x$

But present population of the town = 22000

According to the question,

$\frac{10}{100}x = 22000$

= x = 20000

The population of the town a year ago is 20000.

Question 22

Ankit was given an increment of 10% on his salary. His new salary is Rs. 3575 . what was his salary before investment?

Solution

Let the initial salary be Rs.x

We know that salary

Before increment + increment given on salary = new salary

= x+ 10% of x = 3575

$= \frac{110}{100}x = 3575$

= x = 3250

Salary before increment is Rs.3250

Question 23

In new budget, the price of the petrol rose by 10%. By how much percent must one reduce the consumption so that the expenditure does not increase?

Solution

We have to reduce the consumption such that the expenditure does not increase.

For this, we use the following formula:

$$= r + \frac{10}{100}r$$

$$= \frac{110}{100}x$$

Where r is the percentage rise in the price of the commodity.

Therefore, percentage reduction in the consumption = 9111

Question 24

Mohan's income is Rs.15500 per month. He saves 11% of his income. If his income is increased by 10% , then he reduces his saving by 1%, how much does he save now?

Solution

Mohan's saving = 11% of 15500

$$= \frac{11}{100} \times 15500$$

= Rs. 1705

It is given that Mohan's income increases by 10%

Therefore, increase in income = $\frac{10}{100} \times 15500$

= Rs 1550

Now, percentage of saving = (11-1) % = 10%

Saving

$= \frac{10}{100} \times 17050$

Thus, the amounts of his present and earlier savings are the same

Question 25

Shikha's income is 60% more than that of shalu. What percent is shalu's income less than shikha's?

Solution

Let shalu's income be Rs.x

Shikha's income = Rsx+60% of x

$= \frac{160}{100}x$

Difference in the incomes of shikha and shalu

$= \frac{16}{10}x - \frac{16}{100}x$

$= Rs \frac{6}{10}x$

Percentage of the difference in the incomes of shikha and shalu to that of shikha's income= 37.5%

Question 26

Rs.3500 is to be shared among three people so that the first person gets 50% of the second , who in turn gets 50% of the third. How much will each other of them get?

Solution

Let x, y, z be the the amounts received by the first, second, third person respectively.

We have,