

Exercises – 10 A

Q. 1

Answer :

We have the following:

$$(i) \frac{47}{100} = \left(\frac{47}{100} \times 100 \right) \% = 47\%$$

$$(ii) \frac{9}{20} = \left(\frac{9}{20} \times 100 \right) \% = (9 \times 5) \% = 45\%$$

$$(iii) \frac{3}{8} = \left(\frac{3}{8} \times 100 \right) \% = \left(\frac{3 \times 25}{8} \right) \% = \left(\frac{75}{8} \right) \% = 37 \frac{1}{2} \%$$

$$(iv) \frac{8}{125} = \left(\frac{8}{125} \times 100 \right) \% = \left(\frac{8 \times 4}{5} \right) \% = \left(\frac{32}{5} \right) \% = 6.4\%$$

$$(v) \frac{19}{500} = \left(\frac{19}{500} \times 100 \right) \% = \left(\frac{19}{5} \right) \% = 3.8\%$$

$$(vi) \frac{4}{15} = \left(\frac{4}{15} \times 100 \right) \% = \left(\frac{4 \times 20}{3} \right) \% = \left(\frac{80}{3} \right) \% = 26 \frac{2}{3} \%$$

$$(vii) \frac{2}{3} = \left(\frac{2}{3} \times 100 \right) \% = \left(\frac{200}{3} \right) \% = 66 \frac{2}{3} \%$$

$$(viii) 1 \frac{3}{5} = \frac{8}{5} = \left(\frac{8}{5} \times 100 \right) \% = (8 \times 20) \% = 160\%$$

Q. 2

Answer :

We have the following:

$$(i) 32\% = \left(\frac{32}{100} \right) = \frac{8}{25}$$

$$(ii) 6 \frac{1}{4} \% = \left(\frac{25}{4} \right) \% = \left(\frac{25}{4} \times \frac{1}{100} \right) = \frac{1}{16}$$

$$(iii) 26 \frac{2}{3} \% = \left(\frac{80}{3} \right) \% = \left(\frac{80}{3} \times \frac{1}{100} \right) = \left(\frac{4 \times 1}{3 \times 5} \right) = \frac{4}{15}$$

$$(iv) 120\% = \left(\frac{120}{100} \right) = \frac{6}{5} = 1 \frac{1}{5}$$

$$(v) 6.25\% = \left(\frac{6.25}{100} \right) = \left(\frac{625}{100 \times 100} \right) = \left(\frac{25}{400} \right) = \frac{1}{16}$$

$$(vi) 0.8\% = \left(\frac{0.8}{100} \right) = \left(\frac{8}{10 \times 100} \right) = \left(\frac{8}{1000} \right) = \frac{1}{125}$$

$$(vii) 0.06\% = \left(\frac{0.06}{100} \right) = \left(\frac{6}{100 \times 100} \right) = \left(\frac{6}{10000} \right) = \frac{3}{5000}$$

$$(viii) 22.75\% = \left(\frac{22.75}{100} \right) = \left(\frac{2275}{100 \times 100} \right) = \frac{91}{400}$$

Q. 3

Answer :

We have:

$$(i) 43\% = \frac{43}{100} = 43 : 100$$

$$(ii) 36\% = \frac{36}{100} = \frac{9}{25} = 9 : 25$$

$$(iii) 7.5\% = \left(\frac{7.5}{100} \right) = \left(\frac{75}{10 \times 100} \right) = \frac{3}{40} = 3 : 40$$

$$(iv) 125\% = \frac{125}{100} = \frac{5}{4} = 5 : 4$$

Q. 4

Answer :

We have the following:

$$(i) 37 : 100 = \frac{37}{100} = \left(\frac{37}{100} \times 100 \right) \% = 37\%$$

$$(ii) 16 : 25 = \frac{16}{25} = \left(\frac{16}{25} \times 100 \right) \% = (16 \times 4) \% = 64\%$$

$$(iii) 3 : 5 = \frac{3}{5} = \left(\frac{3}{5} \times 100 \right) \% = (3 \times 20) \% = 60\%$$

$$(iv) 5 : 4 = \frac{5}{4} = \left(\frac{5}{4} \times 100 \right) \% = (5 \times 25) \% = 125\%$$

Q. 5

Answer :

We have the following:

$$(i) 45\% = \left(\frac{45}{100} \right) = 0.45$$

$$(ii) 127\% = \left(\frac{127}{100} \right) = 1.27$$

$$(iii) 3.6\% = \left(\frac{3.6}{100} \right) = \left(\frac{36}{10 \times 100} \right) = \frac{36}{1000} = 0.036$$

$$(iv) 0.23\% = \left(\frac{0.23}{100} \right) = \left(\frac{23}{100 \times 100} \right) = \frac{23}{10000} = 0.0023$$

Q. 6

Answer :

We have:

$$(i) 0.6 = (0.6 \times 100) \% = 60\%$$

$$(ii) 0.42 = (0.42 \times 100) \% = 42\%$$

$$(iii) 0.07 = (0.07 \times 100) \% = 7\%$$

$$(iv) 0.005 = (0.005 \times 100) \% = 0.5\%$$

Q. 7

Answer :

We have:

$$(i) 32\% \text{ of } 425 = \left(\frac{32}{100} \times 425 \right) = \left(\frac{32 \times 17}{4} \right) = (8 \times 17) = 136$$

$$(ii) 16 \frac{2}{3} \% \text{ of } 16 = \frac{50}{3} \% \text{ of } 16 = \left(\frac{50}{3 \times 100} \times 16 \right) = \left(\frac{1}{6} \times 16 \right) = \frac{8}{3} = 2 \frac{2}{3}$$

$$(iii) 6.5\% \text{ of } 400 = \left(\frac{6.5}{100} \times 400 \right) = \left(\frac{65}{10 \times 100} \times 400 \right) = \left(\frac{65 \times 4}{10} \right) = \frac{260}{10} = 26$$

$$(iv) 136\% \text{ of } 70 = \left(\frac{136}{100} \times 70 \right) = \left(\frac{136 \times 7}{10} \right) = \left(\frac{952}{10} \right) = 95.2$$

$$(v) 2.8\% \text{ of } 35 = \left(\frac{2.8}{100} \times 35 \right) = \left(\frac{28}{10 \times 100} \times 35 \right) = \left(\frac{14 \times 7}{100} \right) = \frac{98}{100} = 0.98$$

$$(vi) 0.6\% \text{ of } 45 = \left(\frac{0.6}{100} \times 45 \right) = \left(\frac{6}{10 \times 100} \times 45 \right) = \left(\frac{3 \times 45}{5 \times 100} \right) = \left(\frac{3 \times 9}{100} \right) = \frac{27}{100} = 0.27$$

Q. 8

Answer :

We have the following:

$$(i) 25\% \text{ of Rs } 76 = \text{Rs } \left(76 \times \frac{25}{100} \right) = \text{Rs } \left(76 \times \frac{1}{4} \right) = \text{Rs } 19$$

$$(ii) 20\% \text{ of Rs } 132 = \text{Rs } \left(132 \times \frac{20}{100} \right) = \text{Rs } \left(132 \times \frac{1}{5} \right) = \text{Rs } 26.4$$

$$(iii) 7.5\% \text{ of } 600 \text{ m} = \left(600 \times \frac{7.5}{100} \right) \text{ m} = (6 \times 7.5) \text{ m} = 45 \text{ m}$$

$$(iv) 3 \frac{1}{3} \% \text{ of } 90 \text{ km} = \frac{10}{3} \% \text{ of } 90 \text{ km} = \left(90 \times \frac{10}{3 \times 100} \right) \text{ km} = \left(90 \times \frac{1}{30} \right) \text{ km} = 3 \text{ km}$$

$$(v) 8.5\% \text{ of } 5 \text{ kg} = \left(5 \times \frac{8.5}{100} \right) \text{ kg} = \left(5 \times \frac{85}{1000} \right) \text{ kg} = 0.425 \text{ kg} = 425 \text{ g} \quad [\because 1 \text{ kg} = 1000 \text{ g}]$$

$$(vi) 20\% \text{ of } 12 \text{ L} = \left(12 \times \frac{20}{100} \right) \text{ L} = \left(12 \times \frac{1}{5} \right) \text{ L} = 2.4 \text{ L}$$

Q. 9

Answer :Let x be the required number.Then, 13% of $x = 65$

$$\Rightarrow \left(\frac{13}{100} \times x \right) = 65$$

$$\Rightarrow x = \left(65 \times \frac{100}{13} \right) = 500$$

Hence, the required number is 500.

Q. 10

Answer :Let x be the required number.Then, $6\frac{1}{4}\%$ of $x = 2$

$$\Rightarrow \left(6\frac{1}{4}\% \times x \right) = 2$$

$$\Rightarrow \left(\frac{25}{400} \times x \right) = 2$$

$$\Rightarrow x = \left(2 \times \frac{400}{25} \right) = 32$$

Hence, the required number is 32.

Exercises – 10 B

Q. 1

Answer :

Maximum marks of the examination = 750

Marks secured by Rupesh = 495

$$\text{Percentage of marks secured} = \left(\frac{495}{750} \times 100 \right)\% = 66\%$$

Hence, Rupesh scored 66% in the examination.

Q. 2

Answer :

Total monthly salary = Rs 15625

Increase percentage = 12%

 $\therefore$ Amount increase = 12% of Rs 15625

$$= \text{Rs} \left(15625 \times \frac{12}{100} \right) = \text{Rs} 1875$$

 $\therefore$ New salary = Rs 15625 + Rs 1875

$$= \text{Rs} 17500$$

Hence, the new salary of the typist is Rs 17,500.

Q. 3

Answer :

Original excise duty on the item = Rs 950

Amount reduced on excise duty = Rs $(950 - 760) = \text{Rs } 190$

$$\therefore \text{Reduction percent} = \left(\frac{\text{Reduction amount}}{\text{Original value}} \times 100 \right)$$

$$= \left(\frac{190}{950} \times 100 \right) = 20$$

Hence, the excise duty on that item is reduced by 20%.

Q. 4

Answer :Let Rs x be the total cost of the TV set.

Now, 96% of the total cost of TV = Rs 10464

$$\Rightarrow 96\% \text{ of } x = \text{Rs } 10464$$

$$\Rightarrow \left(\frac{96}{100} \times x \right) = 10464$$

$$\therefore x = \left(\frac{10464 \times 100}{96} \right) = 10900$$

Hence, the total cost of the TV set is Rs 10900.

Q. 5

Answer :

Let the total number of students be 100.

Then, number of boys = 70

$$\therefore \text{Number of girls} = (100 - 70) = 30$$

Now, total number of students when the number of girls is 30 = 100

$$\text{Then, total number of students when the number of girls is 504} = \left(\frac{100}{30} \times 504 \right) = 1680$$

$$\therefore \text{Number of boys} = (1680 - 504) = 1176$$

Hence, there are 1176 boys in the school.

Q. 6

Answer :

Let x kg be the amount of the required ore.

Then, 12% of x kg = 69 kg

$$\Rightarrow \left(\frac{12}{100} \times x \right) \text{ kg} = 69 \text{ kg}$$

$$\Rightarrow x = \left(\frac{69 \times 100}{12} \right) \text{ kg} = 575 \text{ kg}$$

Hence, 575 kg of ore is required to get 69 kg of copper.

Q. 7

Answer :

Let x be the maximum marks.

Pass marks = $(123 + 39) = 162$

Then, 36% of $x = 162$

$$\Rightarrow \left(\frac{36}{100} \times x \right) = 162$$

$$\Rightarrow x = \left(\frac{162 \times 100}{36} \right) = 450$$

$\therefore$ Maximum marks = 450

Q. 8

Answer :

Suppose that the fruit seller initially had 100 apples.

Apples sold = 40

$\therefore$ Remaining apples = $(100 - 40) = 60$

Initial amount of apples if 60 of them are remaining = 100

Initial amount of apples if 1 of them is remaining = $\left(\frac{100}{60} \right)$

Initial amount of apples if 420 of them are remaining = $\left(\frac{100}{60} \times 420 \right) = 700$

Hence, the fruit seller originally had 700 apples.

Q. 9

Answer :

Suppose that 100 candidates took the examination.

Number of passed candidates = 72

Number of failed candidates = $(100 - 72) = 28$

Total number of candidates if 28 of them failed = 100

Total number of candidates if 392 of them failed = $\left(\frac{100}{28} \times 392 \right) = 1400$

Hence, the total number of examinees is 1400.

Q. 10

Answer :

Suppose that the gross value of the moped is Rs x .

Commission on the moped = 5%

Price of moped after deducting the commission = Rs $(x - 5\% \text{ of } x)$

$$= \text{Rs} \left(x - \frac{5x}{100} \right) = \text{Rs} \left(\frac{100x - 5x}{100} \right) = \text{Rs} \left(\frac{95x}{100} \right)$$

Now, price of the moped after deducting the commission = Rs 15200

Then, Rs $\left(\frac{95x}{100} \right) = \text{Rs } 15200$

$$\therefore x = \text{Rs} \left(\frac{15200 \times 100}{95} \right) = \text{Rs} (160 \times 100) = \text{Rs } 16000$$

Hence, the gross value of the moped is Rs 16000.

Q. 11

Answer :

Total quantity of gunpowder = 8 kg = 8000 g (1 kg = 1000 g)

Quantity of nitre in it = 75% of 8000 g

$$= \left(\frac{75}{100} \times 8000 \right) \text{ g} = 6000 \text{ g} = 6 \text{ kg}$$

Quantity of sulphur in it = 10% of 8000 g

$$= \left(\frac{10}{100} \times 8000 \right) \text{ g} = 800 \text{ g} = 0.8 \text{ kg}$$

$\therefore$ Quantity of charcoal in it = $\{8000 - (6000 + 800)\}$ g

$$= (8000 - 6800) \text{ g}$$

$$= 1200 \text{ g} = 1.2 \text{ kg}$$

Hence, the amount of charcoal in 8 kg of gunpowder is 1.2 kg.

Q. 12

Answer :

Total quantity of chalk = 1 kg = 1000 g

Now, we have the following:

Quantity of carbon in it = 3% of 1000 g

$$= \left(\frac{3}{100} \times 1000 \right) = 30 \text{ g}$$

Quantity of calcium in it = 10% of 1000 g

$$= \left(\frac{10}{100} \times 1000 \right) \text{ g} = 100 \text{ g}$$

Quantity of oxygen in it = 12% of 1000 g

$$= \left(\frac{12}{100} \times 1000 \right) \text{ g} = 120 \text{ g}$$

Q. 13

Answer :

Let x be the total number of days on which the school was open.

Number of days when Sonal went to school = 219

Percentage of attendance = 75

Thus, 75% of x = 219

$$\Rightarrow \left(\frac{75}{100} \times x \right) = 219$$

$$\therefore x = \left(\frac{219 \times 100}{75} \right) = 292 \text{ days}$$

Hence, the school was open for a total of 292 days.

Q. 14

Answer :

Let the total value of the property be Rs x.

Percentage of commission = 3

Amount of commission = Rs 42660

Thus, 3% of Rs x = Rs 42660

$$\Rightarrow \left(\frac{3}{100} \times x \right) = 42660$$

$$\therefore x = \left(\frac{42660 \times 100}{3} \right) = 1422000$$

Hence, the total value of the property is Rs 14,22,000.

Q. 15

Answer :

Total number of eligible voters = 60000

Number of voters who gave their votes = 80% of 60000

$$= \left(\frac{80}{100} \times 60000 \right) = 48000$$

Number of votes in favour of candidate A = 60% of 48000

$$= \left(\frac{60}{100} \times 48000 \right) = 28800$$

$\therefore$ Number of votes received by candidate B = (48000 - 28800) = 19200

Hence, candidate B received 19,200 votes.

Exercises – 10 C

Q. 1

Answer :

(b) 75%

$$\frac{3}{4} = \left(\frac{3}{4} \times 100 \right) \% = 75\%$$

Q. 2

Answer :

(c) 40%

$$2 : 5 = \frac{2}{5} = \left(\frac{2}{5} \times 100 \right) \% = 40\%$$

Q. 3

Answer :

(c) $\frac{1}{12}$

$$8\frac{1}{3} \% = \frac{25}{3} \% = \left(\frac{25}{3} \times \frac{1}{100} \right) = \left(\frac{1}{3 \times 4} \right) = \frac{1}{12}$$

Q. 4

Answer :

(c) 12

We have $x\%$ of $75 = 9$

$$\Rightarrow \left(\frac{x}{100} \times 75 \right) = 9$$

$$\therefore x = \left(\frac{9 \times 100}{75} \right) = 12$$

Hence, the value of x is 12

Q. 5

Answer :

(d) 10%

Let x be the required percent.

$$\text{Then, } x\% \text{ of } \frac{2}{7} = \frac{1}{35}$$

$$\Rightarrow \left(\frac{x}{100} \times \frac{2}{7} \right) = \frac{1}{35}$$

$$\therefore x = \left(\frac{100 \times 7}{35 \times 2} \right) = 10$$

Hence, 10% of $\frac{2}{7}$ is $\frac{1}{35}$

Q. 6

Answer :

(b) 2.5%

Let $x\%$ of 1 day be 36 min.

$$\text{Then, } \left(\frac{x}{100} \times 1 \times 24 \times 60 \right) \text{ min} = 36 \text{ min}$$

$$\therefore x = \left(\frac{36 \times 100}{24 \times 60} \right) = \left(\frac{3 \times 5}{2 \times 3} \right) \% = \left(\frac{5}{2} \right) \% = 2.5\%$$

Hence, 2.5% of 1 day is 36 min.

Q. 7

Answer :

(a) 35

Let the required number be x .

$$\text{Then, } x + 20\% \text{ of } x = 42$$

$$\Rightarrow \left(x + \frac{20x}{100} \right) = 42$$

$$\Rightarrow \left(x + \frac{x}{5} \right) = 42$$

$$\Rightarrow \left(\frac{5x + x}{5} \right) = 42 \quad [\because \text{LCM of 1 and 5} = 5]$$

$$\Rightarrow \left(\frac{6x}{5} \right) = 42$$

$$\therefore x = \left(\frac{42 \times 5}{6} \right) = 35$$

Hence, the required number is 35.

Q. 8

Answer :

(b) 75

Let the required number be x .

$$\text{Then, } x - 8\% \text{ of } x = 69$$

$$\Rightarrow \left(x - \frac{8x}{100} \right) = 69$$

$$\Rightarrow \left(x - \frac{2x}{25} \right) = 69$$

$$\Rightarrow \left(\frac{25x - 2x}{25} \right) = 69 \quad [\text{Since L.C.M. of 1 and 25} = 25]$$

$$\Rightarrow \left(\frac{23x}{25} \right) = 69$$

$$\therefore x = \left(\frac{69 \times 25}{23} \right) = 75$$

Hence, the required number is 75

Q. 9

Answer :

(d) 8 kg

Let x kg be the required amount of ore.

Then, 5% of x kg = 400 g = 0.4 kg $[\because 1 \text{ kg} = 1000 \text{ g}]$

$$\Rightarrow \left(\frac{5}{100} \times x \right) = 0.4$$

$$\Rightarrow x = \left(\frac{0.4 \times 100}{5} \right) = 8$$

Hence, 8 kg of ore is required to obtain 400 g of copper.

Q. 10

Answer :

(b) Rs. 20000

Suppose that the gross value of the TV is Rs x .

Commission on the TV = 10%

Price of the TV after deducting the commission = Rs $(x - 10\% \text{ of } x)$

$$= \text{Rs} \left(x - \frac{10}{100} x \right) = \text{Rs} \left(\frac{100x - 10x}{100} \right) = \text{Rs} \left(\frac{9x}{10} \right)$$

However, price of the TV after deducting the commission = Rs 18000

$$\text{Then, Rs} \left(\frac{9x}{10} \right) = \text{Rs } 18000$$

$$\therefore x = \left(\frac{18000 \times 10}{9} \right) = \text{Rs} (2000 \times 10) = \text{Rs } 20000$$

Hence, the gross value of the TV is Rs 20,000

Q. 11

Answer :

(b) Rs. 16000

Let us assume that the original salary of the man is Rs x .

Increase in it = 25%

Value increased in the salary = 25% of Rs. x

$$= \text{Rs} \left(\frac{25}{100} \times x \right) = \text{Rs} \left(\frac{x}{4} \right)$$

$$\text{Salary after increment} = \text{Rs} \left(x + \frac{x}{4} \right) = \text{Rs} \left(\frac{5x}{4} \right)$$

However, increased salary = Rs 20000

$$\text{Then, Rs} \left(\frac{5x}{4} \right) = \text{Rs } 20000$$

$$\therefore x = \text{Rs} \left(\frac{20000 \times 4}{5} \right) = \text{Rs } 16000$$

Hence, the original salary of the man is Rs 16,000

Q. 12

Answer :

(c) 560

Suppose that the number of examinees is 100.

Number of passed examinees = 95

Number of failed examinees = $(100 - 95) = 5$

Total number of examinees if 5 of them failed = 100

$$\text{Total number of examinees if 28 of them failed} = \left(\frac{100}{5} \times 28 \right) = (20 \times 28) = 560$$

Hence, there were 560 examinees.

Q. 13

Answer :

(c) 700

Suppose that the fruit seller initially had 100 apples.

Number of apples sold = 40

$\therefore$ Number of remaining apples = $(100 - 40) = 60$

Initial number of apples if 60 of them are remaining = 100

$$\text{Initial number of apples if 420 of them are remaining} = \left(\frac{100}{60} \times 420 \right) = 700$$

Hence, the fruit seller originally had 700 apples with him.

Q. 14

Answer :

(c) Rs. 25250

Present value of the machine = Rs 25000

Decrease in its value after 1 year = 10% of Rs 25000

$$= \text{Rs} \left(\frac{10}{100} \times 25000 \right) = \text{Rs} 2500$$

Depreciated value after 1 year = Rs (25000 – 2500) = Rs 22500

Hence, the value of the machine after 1 year will be Rs 22500

Q. 15

Answer :

(c) 75

Let the required number be x . Then, we have:

8% of $x = 6$

$$\Rightarrow \left(\frac{8}{100} \times x \right) = 6$$

$$\therefore x = \left(\frac{6 \times 100}{8} \right) = 75$$

Hence, the required number is 75

