9. Percentage

Exercise 9A

1. Question
Answer

(i) 48% means, 48 divided by 100.

So, 48% = 48 /100

= 12 /25

(ii) 220% means, 220 divided by 100.

So, 220% = 220 /100

= 11 /5

(ii) 2.5% means, 2.5 divided by 100.

So, 2.5% = 2.5 /100

= 1 /40

2. Question
Answer

(i) 6% means, 6 divided by 100.

So, 6% = 6 /100

= 3 /50 = 0.06

(ii) 72% means, 72 divided by 100.

So, 72% = 72 /100

= 18 /25 = 0.72

(iii) 125% means, 125 divided by 100.

So, 125% = 125 /100

= 5 /4 = 1.25

3. Question

Answer

(i) $\frac{9}{25} = (\frac{9}{25} \times 100)\%$

= (9 x 4) %

= 36%

(ii) $\frac{3}{125} = (\frac{3}{125} \times 100)\%$

$= 2.4\%$

(iii) $\frac{12}{5} = (\frac{12}{5} \times 100)\%$

$= (12 \times 20)\%$

$= 240\%$

4. Question

Answer

$4 : 5 = \frac{4}{5}$

$= (\frac{4}{5} \times 100)\%$ [Because 100% = 1]

$= 80\%$

5. Question

Answer

125% = 125/100

= 5 /4 [Divided by 25]

= 5 : 4

6. Question

Answer

$6\frac{2}{3}\%$

= (20 /3) %

= (20 /3 x 1 /100)

= 1 /15

= 0.06 ____ (i)

$\frac{3}{20}$ = 0.15 ____ (ii)

0.14 ____(iii)

From equation (i), (ii) and (iii),

0.15 > 0.14 > 0.06

7 A. Question

Answer

Percentage = (96 /150 x 100) %

= (96 /3 x 2) % [Divided by 50]

= (32 x 2) %

= 64%

7 B. Question

Answer

5 kg = 5 x 1000

= 5000 g

Now,

Percentage = (200 /5000 x 100) %

= (200 /50) % [Divided by 100]

= 4 %

7 C. Question

Answer

2 liters = 2 x 1000

= 2000 mL

Now,

Percentage = (250 /2000 x 100) %

= (250 /20) % [Divided by 100]

= 12.5 %

8. Question

Answer

$4\frac{1}{2}\%$ = (9 /2) x 100

= 9 /200

Now,

9 /200 of 3600 = 9 /200 x 3600

= 9 x 18 [Divided by 200]

= 162

9. Question

Answer

Let the number = Z

∴ 16% of Z is 72.

⇒ 16 /100 × Z = 72

⇒ 16 Z = 7200

⇒ Z = 7200 /16

⇒ Z = 450

10. Question

Answer

Let Rs. Z his monthly income.

∴ Saving = 18% of Rs. Z

⇒ 3780 = 18 /100 × Z

⇒ 3780 = 9 /50 × Z

⇒ Z = 3780 × 50/9

⇒ Z = 420 × 50

[Because 420 × 9 = 3780]

⇒ Z = 21000

Therefore, his monthly income is Rs 21000/–

11. Question

Answer

Let, total games played = Z

∴ percentage of games won = 35% of Z

⇒ 7 = 35/100 × Z

⇒ 7 = 7/20 × Z [Divided by 5]

⇒ Z = 7 × 20/7

⇒ Z = 20

12. Question

Answer

Let Amit's old salary = Z

∴ Salary after increment = (Z + 20Z/100)

Now,

⇒ (Z + 20 Z/100) = 30600

⇒ (100 Z + 20 Z)/100 = 30600

⇒ 120 Z = 30600 × 100

⇒ Z = 25500

13. Question

Answer

Let the number of days the school was opened = Z

∴ Percentage of attendance = 85% of Z

Now,

85% of Z = 204

⇒ 85/100 × Z = 204

⇒ Z = 204 × 100/85

⇒ Z = 204 × 20/17 [Divided by 5]

⇒ Z = 12 × 20

⇒ Z = 240

14. Question

Answer

Let B's income = 100

Then, A's income = (100 - 20) = 80

∴ B's income more than A's income = (100 - 80)/80 × 100

= 20/80 × 100

= 1/4 × 100

= 25

15. Question

Answer

Let the consumption of petrol = 1 unit and its cost = Rs.100

∴ New cost of 1 unit of petrol = Rs.110

Now,

Rs.110 will yield 1 unit of petrol.

∴Rs.100 will yield (1/110 × 100)

= 10/11 unit of petrol

Now,

Reduction of consumption = 1 - (10/11)

= 1/11

Percentage of reduction = (1/11 × 100) %

$= 9\frac{1}{11}\%$

16. Question

ago?

Answer

Let population of the town a year ago = Z

∴ Present population = 108% of Z

⇒ 54000 = Z × 108/100

⇒ 54000 = Z × 27/25

⇒ Z = 54000 × 25/27

⇒ Z = 2000 × 25

⇒ Z = 50000

17. Question

Answer

Let the value of machine last year = Z

∴ Present value = (100 – 20) % of Z

⇒ 160000 = 80% of Z

⇒ 160000 = Z × 80/100

⇒ Z = 160000 × 100/80

⇒ Z = 2000 × 100

⇒ Z = 200000

18. Question

Answer

Given,

Percentage of copper = 40%

Percentage of nickel = 32%

∴ Percentage of zinc = {100 – (40 + 32)} %

= 28 %

Now,

Mass of zinc in 1 kg of the alloy = (28 × 1/100) kg

= 0.28 kg

= 0.28 × 1000 g

= 280 g

19. Question

Answer

Amount of proteins = 12% of 2600

$$= 2600 \times \frac{12}{100}$$

= 26 × 12

= 312 calories

Amount of fats = 25% of 2600

$$= 2600 \times \frac{25}{100}$$

= 26 × 25

= 650 calories

Amount of carbohydrates = 63% of 2600

$$= 2600 \times \frac{63}{100}$$

= 26 × 63

= 1638 calories

20. Question

Answer

Let the amount of gunpowder which carries 9 kg nitre = Z

∴ 75% of Z = 9 kg

⇒ Z × 75/100 = 9

⇒ Z = 9 × 100/75

⇒ Z = 9 × 4/3

⇒ Z = 12 kg

Now,

Let the amount of gunpowder which carries 2.5 kg sulphur = K

∴ 10% of K = 2.5 kg

⇒ K × 10/100 = 2.5

⇒ K = 2.5 × 100/10

⇒ K = 2.5 × 10

⇒ K = 25 kg

21. Question

Answer

Let the amount of money gets by C = Rs. Z

∴ Amount of money B gets = (50% of Rs.Z)

∴ Amount of money A gets = (50% of B)

= (25% of Rs.Z)

Now,

Z + (50% of Rs.Z) + (25% of Rs.Z) = RS.7000

⇒ Z + (Z × 50/100) + (Z × 25/100) = 7000

⇒ Z + 50 Z/100 + 25 Z/100 = 7000

⇒ 175 Z/100 = 7000

⇒ Z = 7000 × 100/175

⇒ Z = 7000 × 4/7

⇒ Z = 4000

∴ C gets = Rs.4000

∴ Amount of money B gets = (50% of Rs.Z)

= (50% of Rs.4000)

= (Rs.4000 × 50/100)

= Rs.2000

∴ Amount of money A gets = (25% of Rs.Z)

= (25% of Rs.4000)

= (Rs.4000 × 25/100)

= Rs.1000

22. Question

Answer

22-carat gold contains 22 parts out of 24 parts.

∴ Percentage of pure gold in 22-carat gold = $\left(\frac{22}{24}\times 100\right)\% = 91\frac{2}{3}\%$.

Hence, 22-carat gold contains $91\frac{2}{3}\%$ of pure gold.

23. Question

Answer

Let the original salary = Rs.100

Then,

After increment of 25% = 100 (1 + 25/100)

= 100 (125/100)

= Rs.125

Now,

To restore the original salary,

Let the new salary decreased by Z%

∴ 125(1 - Z/100) = 100

⇒ (1 – Z/100) = 100/125

⇒ (1 – Z/100) = 4/5

⇒ Z/100 = 1/5 [1 – 4/5 = 1/5]

⇒ Z = 100/5

⇒ Z = 20%

Exercise 9B

1. Question

Answer

3/5 = (3/5 × 100) %

= (3 × 20) %

= 60%

2. Question

Answer

0.8% = 0.8/100

= 0.008

3. Question

Answer

6 : 5 = 6/5

= (6/5 × 100) % [100% = 1]

= (6 × 20) %

= 120 %

4. Question

Answer

Let number = Z

Then,

5% of Z = 9

⇒ 5/100 × Z = 9

⇒ 5 Z = 900

⇒ Z = 180

5. Question

Answer

Let Z% of 90 is 120

∴ Z/100 × 90 = 120

⇒ 90 Z = 120 × 100

⇒ Z = 12000/90

⇒ Z = 400/3

⇒ Z = $133\frac{1}{3}\%$

6. Question

Answer

10 kg = 10 × 1000

= 10000 g

Let Z% of 1000 is 250

∴ Z/100 × 10000 = 250

⇒ 100 Z = 250

⇒ Z = 250/100

⇒ Z = 2.5%

7. Question

Answer

Let, 40% of Z = 240

⇒ 40/100 × Z = 240

⇒ Z = 240 × 100/40

⇒ Z = 6 × 100 [40 × 6 = 240]

⇒ Z = 600

8. Question

Answer

Let, Z% of 400 = 600

⇒ Z/100 × 400 = 60

⇒ 4 Z = 60

⇒ Z = 60/4

⇒ Z = 15

9. Question

Answer

Let (180% of Z) ÷2 = 504

∴ (180/100 × Z) ÷2 = 504

⇒ (18/10 × Z) = 504 × 2

⇒ Z = 504 × 2 × 10/18

⇒ Z = 504 × 10/9

⇒ Z = 560

10. Question

Answer

20 % of Rs.800 = 20/100 × 800

= 20 × 8

= 160

11. Question

Answer

Let the maximum marks = Z

∴ 56% of Z = 98

⇒ Z × 56/100 = 98

⇒ Z = 98 × 100/56

⇒ Z = 7 × 100/4

⇒ Z = 175

12. Question

Answer

Let the number = Z

10% increased by number = Z (1 + 10/100)

= 11Z/10

Now,

10% decreased by number = 11Z/10 (1 − 10/100)

= (11Z/10) (90/100)

= 99Z/100

∴ difference = Z − 99Z/100

= Z/100

Percentage of decreases = Z/100 × 1/Z × 100

= 1%

13. Question

Answer

4 hours 30 min = (4 × 60) + 30

= 240 + 30

= 270 min

24 hours = 24 × 60

= 1440 min

Now,

Percentage = (270/1440 × 100) %

= (3/16 × 100) %

= (3/4 × 25) %

= (75/4) %

$= 18\frac{3}{4}\%$

14. Question

Answer

Let the total number of examines = Z

Percentage of examines failed = (100 – 65) % = 35%

∴ 35% of Z = 420

⇒ Z × 35/100 = 420

⇒ Z = 420 × 100/35

⇒ Z = 12 × 100

⇒ Z = 1200

15. Question

Answer

Let the number = Z

∴ 20% of Z + 40 = Z

⇒ (Z × 20/100) + 40 = Z

⇒ Z/5 + 40 = Z

⇒ Z – Z/5 = 40

⇒ 4Z/5 = 40

⇒ Z = 40 × 5/4

⇒ Z = 50

16. Question

Answer

Let the number = Z

∴ Z – ($27\frac{1}{2}$% of Z) = 87

⇒ Z – (Z × 55/2 × 1/100) = 87

⇒ Z – (Z × 11/2 × 1/20) = 87

⇒ Z– (11Z/40) = 87

$\Rightarrow 29Z/40 = 87$

$\Rightarrow 29Z/40 = 87$

$\Rightarrow Z = 87 \times 40/29$

$\Rightarrow Z = 120$

17. Question

Answer

Percentage $= (0.05/20 \times 100)\%$

$= (0.05 \times 5)\%$

$= 0.25\%$

18. Question

Answer

Percentage $= \{(1/3 \times 1206) \times (1/134) \times 100\}\%$

$= \{402 \times 1/134 \times 100\}\%$

$= \{3 \times 100\}\%$

$= 300\%$

19. Question
Answer

Let x% of y is y% of Z

$\therefore x/100 \times y = y/100 \times Z$

$\Rightarrow x\,y/100 = y/100 \times Z$

⇒ Z = x y/100 × 100/y

⇒ Z = x

20. Question

Answer

Percentage = {(1/35)/(2/7) × 100} %

= {1/35 × 7/2 × 100} %

= {1/5 × 1/2 × 100} %

= {1/5 × 50} %

= 10%

CCE Test Paper-9

1 A. Question

Answer

24% means, 24 divided by 100.

So, 24% = 24/100

= 6/25

1 B. Question

Answer

105% means, 105 divided by 100.

So, 105% = 105/100

= 1.05

1 C. Question

Answer

4 : 5 = 4 /5

= (4 /5 x 100) % [Because 100% = 1]

= 80%

1 D. Question

Answer

56% means, 56 divided by 100.

So, 56% = 56/100

= 14/25

= 14:25

2. Question

.

Answer

Let the number = Z

∴ 34% of Z = 85

⇒ 34/100 x Z = 85

⇒ Z = 85 x 100/34

⇒ Z = 5 x 100/2

⇒ Z = 250

3. Question

Answer

Let the value of the machine last year = Z

∴ Present value of the machine = (100 - 10) % of Rs.Z

⇒ 54000 = 90% of Z

⇒ 54000 = Z x 90/100

⇒ Z = 54000 x 100/90

⇒ Z = 600 x 100

⇒ Z = 60000

4. Question

Answer

Given,

Percentage of copper = 30%

Percentage of nickel = 42%

∴ Percentage of zinc = {100 - (30 + 42)} %

= 28 %

Now,

Mass of zinc in 1 kg of the alloy = (28 × 1/100) kg

= 0.28 kg

= 0.28 × 1000 g

= 280 g

5. Question

Answer

Let the total number of students = Z

Percentage of girls = (100 – 60) % = 40%

Now,

Number of girls = 40% of Z

⇒ 14 = Z × 40/100

⇒ Z = 14 × 100/40

⇒ Z = 14 × 5/2

⇒ Z = 35

6. Question

Answer

= (25 /3) %

= (25 /3 x 1 /100)

= 8.33 /100

= 0.08_____(i)

$\frac{4}{25}$ = 0.16_____(ii)

0.15 _____(iii)

From equation (i), (ii) and (iii),

0.16 > 0.15 > 0.08

7. Question

Answer

Percentage = {(1/45)/(2/9) × 100} %

= {1/45 × 9/2 × 100} %

= {1/5 × 1/2 × 100} %

$= \{1/5 \times 50\}\%$

$= 10\%$

8. Question

Answer

Let the number = Z

$\therefore Z - (30\% \text{ of } Z) = 84$

$\Rightarrow Z - (Z \times 30/100) = 84$

$\Rightarrow Z - 30\,Z/100 = 84$

$\Rightarrow 70\,Z/100 = 84$

$\Rightarrow Z = 84 \times 100/70$

$\Rightarrow Z = 12 \times 10$

$\Rightarrow Z = 120$

9. Question

Answer

Percentage $= (48/320 \times 100)\%$

$= (48/32 \times 10)\%$

$= (3/2 \times 10)\%$

$= 15\%$

10. Question

Answer

Percentage $= (54/45 \times 100)\%$

$= (54/9 \times 20)\%$

$= (6 \times 20)\ \%$

$= 120\%$

11. Question

Answer

Let the number = Z

$\therefore$ 25% of Z + 60 = Z

$\Rightarrow (Z \times 25/100) + 60 = Z$

$\Rightarrow Z/4 + 60 = Z$

$\Rightarrow Z - Z/4 = 60$

$\Rightarrow 3Z/4 = 60$

$\Rightarrow Z = 60 \times 4/3$

$\Rightarrow Z = 80$

12. Question

Answer

Let the number = Z

$\therefore$ 5% of Z = 12

$\Rightarrow Z \times 5/100 = 12$

$\Rightarrow Z = 12 \times 100/5$

$\Rightarrow Z = 12 \times 20$

$\Rightarrow Z = 240$

13. Question

Answer

(i) 90

$7\frac{1}{2}$% of Rs.1200 = (15/2) % of Rs.1200

= 15/2 × 1/100 × 1200

= 15/2 × 12

= 90

∴ Rs.90

(ii) 8

240 mL = (240/1000) L

Now,

Percentage = (240/1000 × 1/3 × 100) %

= (240/10 × 1/3) %

= (80/10) %

= 8%

(iii) 120

X% of 35 = 42

⇒ 35 × X/100 = 42

⇒ 35X/100 = 42

⇒ X = 42 × 100/35

⇒ X = 6 × 100/5

⇒ X = 120

(iv) 240

12/5 = (12/5 × 100) %

= (12 × 20) %

= 240%

(v) 150

Let the number = Z

∴ 120 = Z% of 80

⇒ 120 = 80 × Z/100

⇒ Z = 120 × 100/80

⇒ Z = 120 × 5/4

⇒ Z = 150

14. Question

Answer

(i) False

6% of 8 = 8 × 6/100

= 48/100

= 0.48

(ii) False

6:5 = 6/5

= (6/5 × 100) %

= (6 × 20) %

= 120%

(iii) True

3/5 = 3/5

= (3/5 × 100) %

= (3 × 20) %

= 60%

(iv) True

1 day = 24 hours

6 hours = (6/24 × 100) %

= (1/4 × 100) %

= 25%