

Tender Heart High School, Sec-33B, Chandigarh

Class - V

Date - 11.11.2024

Subject - Mathematics

Teacher - Ms. Sushma

Chapter - 13 Percentage

The term per cent is taken from the Latin words per and centum.

Per means out of and centum means century (100)

A percentage is a fraction with 100 as the denominator.

Converting Fractions to percentages:-

A fraction with the denominator 100 can be expressed as a percentage by just putting the % symbol along with the numerator.

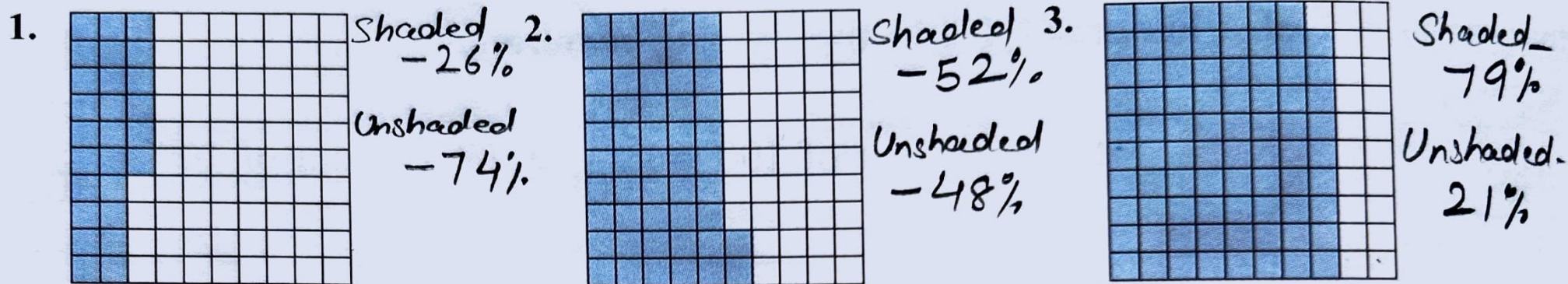
Converting percentages to Fractions:-

To convert a percentage to a fraction, remove the percentage symbol (%) and divide the number by 100. Reduce the fraction formed to its lowest term.

Exercise 13.1

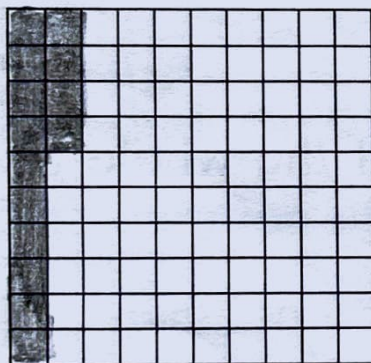


A. Find the per cent of the shaded portion and unshaded portion in each 10×10 grid.

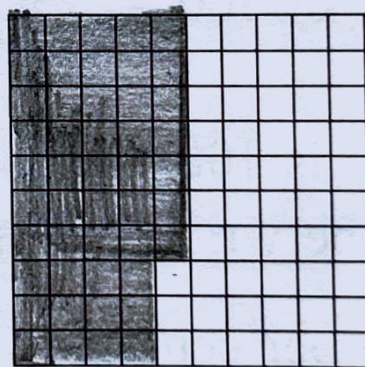


B. Shade the portion in each 10×10 grid to represent the given percentage.

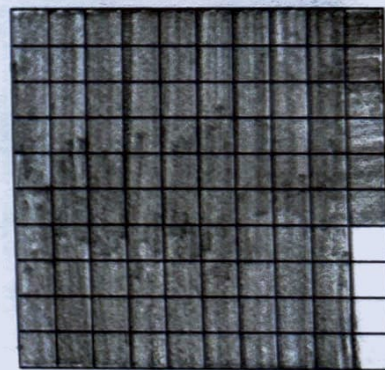
1. 14%



2. 48%



3. 96%



Exercise 13.2

A. Convert these fractions to percentages.

1. $\frac{55}{100} = 55\%$

3. $\frac{7}{100} = 7\%$

2. $\frac{19}{100} = 19\%$

4. $\frac{8}{25} \times \frac{4}{4} = \frac{32}{100} = 32\%$

5. $\frac{3}{4} \times \frac{25}{25} = \frac{75}{100} = 75\%$

6. $\frac{1}{10} \times \frac{10}{10} = \frac{10}{100} = 10\%$

7. $3\frac{1}{5} = \frac{16}{5} \times \frac{20}{20} = \frac{320}{100} = 320\%$

B. Convert these percentages to fractions.

1. $12\% = \frac{12}{100} \div \frac{4}{4} = \frac{3}{25}$

2. $5\% = \frac{5}{100} \div \frac{5}{5} = \frac{1}{20}$

3. $47\% = \frac{47}{100}$

4. $36\% = \frac{36}{100} \div \frac{4}{4} = \frac{9}{25}$

Converting Percentages to decimals:-

Method I $\rightarrow$ Remove the % symbol. Write the number as a fraction with the denominator 100 and then convert it to a decimal.Method II $\rightarrow$ Remove the % symbol and then move the decimal point two places to the left.

Exercise 13.3

A. Convert these decimals to percentages.

$$1. \quad 0.9 = \frac{9}{10} \times 100 = 9 \times 10 = 90\%$$

$$2. \quad 0.1 = \frac{1}{10} \times 100 = 1 \times 10 = 10\%$$

$$3. \quad 3.3 = \frac{33}{10} \times 100 = 33 \times 10 = 330\%$$

$$4. \quad 0.82 = \frac{82}{100} \times 100 = 82\%$$

$$5. \quad 1.12 = \frac{112}{100} \times 100 = 112\%$$

$$6. \quad 0.203 = \frac{203}{1000} \times 100 = \frac{203}{10} = 20.3\%$$

$$7. \quad 1.148 = \frac{1148}{1000} \times 100 = \frac{1148}{10} = 114.8\%$$

B. Convert these percentages to decimals.

$$1. \quad 26\% = \frac{26}{100} = 0.26$$

$$2. \quad 65\% = \frac{65}{100} = 0.65$$

$$3. \quad 1.3\% = \frac{1.3}{100} = \frac{13}{10 \times 100} = \frac{13}{1000} = 0.013$$

$$4. \quad 1.8\% = \frac{1.8}{100} = \frac{18}{10 \times 100} = \frac{18}{1000} = 0.018$$

$$5. \quad 61.2\% = \frac{61.2}{100} = \frac{612}{10 \times 100} = \frac{612}{1000} = 0.612$$

$$6. \quad 95.4\% = \frac{95.4}{100} = \frac{954}{100 \times 10} = \frac{954}{1000} = 0.954$$

Finding the percentage of a given number.

To find the percentage of a number, convert the given percentage to a fraction and then multiply the fraction by the given number.

Exercise 13.4

A. Find.

1. 10% of 60 L

$$= \frac{10}{100} \times 60$$

$$= 6 \text{ L}$$

2. 20% of 700 cm

$$\frac{20}{100} \times 700 = 140 \text{ cm}$$

3. 50% of 1350 g

$$\frac{50}{100} \times 1350 = 5 \times 135 = 675 \text{ g}$$

4. 25% of ₹200

$$\frac{25}{100} \times 200 = ₹50$$

B. Express each as a percentage.

1. 5 cm of a metre

$$1 \text{ m} = 100 \text{ cm}$$

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

2. 900 g of a kilogram

$$1 \text{ kg} = 1000 \text{ g}$$

$$\frac{900}{1000} \times 100 = 90\%$$

3. 500 ml of a 1 litre

$$1 \text{ litre} = 1000 \text{ ml}$$

$$\frac{500}{1000} \times 100 = 50\%$$

4. 45 cm of 10 m

$$1 \text{ m} = 100 \text{ cm}$$

$$10 \text{ m} = 1000 \text{ cm}$$

$$\frac{45}{1000} \times 100 = \frac{45}{10} = 4.5\%$$

STORY SUMS: →

Exercise 13.5

Solve these story sums.

1. Find the percentage of vowels in the word ABERRATION.

Soln: → Given word is ABERRATION

Total no. of letters = 10

No. of vowels = 5

$$\% \text{age of vowels} = \frac{5}{10} \times 100 = 5 \times 10 = 50\%$$

2. Grandfather gave ₹500 to Aakash. Aakash spent ₹250 out of it. What percentage of money did he spend?

Soln: → Total money gave to Aakash = ₹500

Money spent by Aakash = ₹250

$$\% \text{age of money spent} = \frac{250}{500} \times 100 = \frac{250}{5} = 50\%$$

3. In a garden with 20 trees, 20% were of tamarind, 10% of guava, 40% of neem and the remaining were of mango. Find the number of trees of each type.

Soln: → Total no. of trees in a garden = 20

No. of tamarind trees = 20% of 20

$$= \frac{20}{100} \times 20 = 4 \text{ trees}$$

$$\text{No. of guava trees} = 10\% \text{ of } 20 = \frac{10}{100} \times 20 = 2 \text{ trees.}$$

$$\text{No. of Neem trees} = 40\% \text{ of } 20$$

$$= \frac{40}{100} \times 20 = 4 \times 2 = 8 \text{ trees.}$$

$$\begin{aligned} \text{No. of Mango trees} &= \text{Total Trees} - (4 + 2 + 8) \\ &= 20 - 14 \\ &= 6 \text{ trees} \end{aligned}$$

Q4. 4.5% of glasses in a carton broke during transport. If the total no. of glasses in the carton was 1000, how many were unbroken?

Soln:→ Total no. of glasses in the carton = 1000
4.5% of glasses in a carton broke.

$$\begin{aligned} \text{No. of } \cancel{g} \text{ broken glasses} &= 4.5\% \text{ of } 1000 \\ &= \frac{4.5}{100} \times 1000 \\ &= \frac{45}{100} \times \cancel{1000} \\ &= 45 \text{ glasses} \end{aligned}$$

$$\begin{aligned} \text{No. of unbroken glasses} &= \text{Total glasses} - \text{broken glasses} \\ &= 1000 - 45 \\ &= 955 \text{ glasses.} \end{aligned}$$

Q5. Out of 3200 Siberian cranes, 75% have migrated to Bharatpur, India. How many Siberian cranes have migrated to India?

Soln:- Total no. of Siberian cranes = 32000

75% Siberian cranes have migrated to India.

No. of Siberian cranes migrated to India = 75% of 32000

$$= \frac{75}{100} \times 32000$$

$$= 75 \times 320$$

$$= 2400$$

So, 2400 Siberian cranes migrated to India.