

CLASS- 7th.

Chapter = 8

Exercise - 8.2
COMPARING QUANTITIES.

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RUBBY DUTTA
GHS SIDHWAN
MATH MISTRESS
BLOCK - NAKODAR 1
JALANDHAR.

8 PERCENTAGE

1. A fraction with denominator 100 is called Percent.

2. Symbol used for Percent is %

For Example: $\frac{19}{100} = 19\%$ $\frac{7}{100} = 7\%$.

3. Percent can be converted into fraction and decimal.

4. Percent can be expressed as a ratio.

5. If the total is not hundred, then convert it into an equivalent fraction with denominator 100.

Exercise - 8.2.

Sum. 1. Convert the following fractions into Percents.

(i) $\frac{1}{8}$

Sol. $= \frac{1}{8} \times \frac{25}{100} \%$
 $= \frac{25}{8} \%$
 $= 12.5\% \quad \text{Ans}$

(ii) $\frac{49}{50}$

Sol. $= \frac{49}{50} \times 2 \%$
 $= 49 \times 2 \%$
 $= 98\% \quad \text{Ans}$

$$\frac{1}{(iii)} \frac{5}{4}$$

$$\begin{aligned} \text{Sol.} &= \frac{5}{4} \times 100\% \\ &= 5 \times 25\% \\ &= 125\% \text{ Ans.} \end{aligned}$$

$$(iv) 1\frac{3}{8}$$

$$\begin{aligned} \text{Sol.} &= 1\frac{3}{8} \\ &= \frac{11}{8} \times 100\% \\ &= \frac{11}{8} \times 25\% \\ &= \frac{275}{2}\% \\ &= 137\frac{1}{2}\% \end{aligned}$$

2. Convert the following Percents into fractions in simplest form.

$$(i) 25\%$$

$$\begin{aligned} &= \frac{25}{100} \\ &= \frac{1}{4} \text{ Ans.} \end{aligned}$$

$$(ii) 150\%$$

$$\begin{aligned} &= \frac{150}{100} \\ &= \frac{15^3}{10^2} \\ &= \frac{3}{2} \text{ Ans} \end{aligned}$$

$$(iii) 7\frac{1}{2}\%$$

$$= \frac{15}{2}\%$$

$$= \frac{15}{2 \times 100}$$

$$= \frac{3}{2 \times 20}$$

$$= \frac{3}{40} \text{ Ans.}$$

3. (i) Anita secured 324 marks out of 400 marks
Find the percentage of marks secured by Anita.

Sol Percentage of marks secured by Anita = $\frac{324}{400} \times 100\%$
 $= \frac{324}{4} \%$
 $= 81\% \text{ Ans.}$

- (ii) Out of 32 students, 8 are absent from the class. What is the percentage of students who are absent.

Sol Total students = 32.
 Absent students = 8.

Percentage of Absent students = $\frac{8}{32} \times 100\%$
 $= \frac{1}{4} \times 100\%$
 $= 25\% \text{ Ans.}$

- (iii) There are 120 voters, 90 out of them voted what percent did not vote?

Sol Total voters = 120.

No. of voters who did a vote = 90

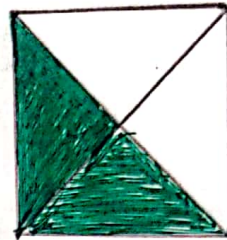
No. of voters who did not vote = $120 - 90 = 30$

Percentage of them who did not vote = $\frac{30}{120} \times 100\%$
 $= \frac{1}{4} \times 100\% = 25\%$

4. Estimate the part of figure which is shaded and hence find the percentage of the part which is shaded.

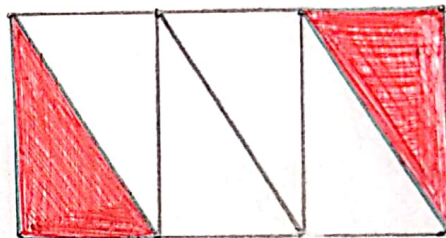
(i) $\frac{\text{Shaded Part}}{\text{Fraction Part}} = \frac{\frac{2}{4}}{\frac{2}{2}} = \frac{1}{2}$

$$\text{Percentage} = \frac{1}{2} \times 100\% = 50\%$$



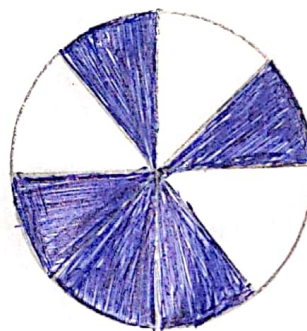
(ii) $\frac{\text{Fraction Part}}{\text{Shaded Part}} = \frac{2}{6} = \frac{1}{3}$

$$\text{Percentage} = \frac{1}{3} \times 100\% = \frac{100}{3}\% = 33\frac{1}{3}\%$$



(iii) $\text{Shaded Part} = \frac{5}{8}$

$$\begin{aligned} \text{Percentage} &= \frac{5}{8} \times 100\% \\ &= \frac{5 \times 25}{2}\% \\ &= \frac{125}{2}\% \\ &= 62.5\% \end{aligned}$$



5. Convert the following Percentages into ratios in simplest form:

(i) 14%

Sol. $\frac{14}{100} = \frac{7}{50} = 7:50$ Ans.

$$5(ii) \ 1\frac{3}{4} \%$$

$$= \frac{7}{4} \times \frac{1}{100}$$

$$= \frac{7}{400}$$

$$= 7:400 \text{ Ans.}$$

$$(iii) \ 33\frac{1}{3} \%$$

$$= \frac{100}{3} \times \frac{1}{100}$$

$$= \frac{1}{3}$$

$$= 1:3 \text{ Ans}$$

6. Express the following ratios as percentages:

$$(i) \ 5:4$$

$$= \frac{5}{4} \times 100 \%$$

$$= 5 \times 25 \%$$

$$= 125 \% \text{ Ans}$$

$$(ii) \ 1:1$$

$$= \frac{1}{1} \times 100 \%$$

$$= 100 \% \text{ Ans}$$

$$(iii) \ 2:3$$

$$= \frac{2}{3} \times 100 \%$$

$$= \frac{200}{3} \%$$

$$= 66\frac{2}{3} \% \text{ Ans.}$$

$$(iv) \ 9:16$$

$$= \frac{9}{16} \times 100 \%$$

$$= \frac{9}{4} \times 25 \%$$

$$= \frac{225}{4} \%$$

$$= 56\frac{1}{4} \% \text{ Ans}$$

7. Chalk Contains Calcium, Carbon and sand in the ratio 12:3:10. Find the percentage of carbon in the chalk. (6)

Sol. = Percentage of Carbon in the chalk = $\frac{3}{12+3+10} \times 100\%$

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

$$= 3 \times 4\%$$

$$= 12\%$$

8. Convert each part of the following ratios into Percentage.

(i) 3:1

Sol Percentage of Ist Part = $\frac{3}{4} \times 100\%$

$$= \frac{300}{4}\% = 75\%$$

(ii) Percentage of IInd Part

$$= \frac{1}{4} \times 100\%$$

$$= 25\%$$

(iii) 4:5:6

Sol Percentage of Ist Part

$$= \frac{4}{15} \times \frac{20}{100}\%$$

$$= \frac{4 \times 20}{3}\% = \frac{80}{3}\%$$

$$= 26 \frac{2}{3}\%$$

Percentage of IInd Part

$$= \frac{5}{15} \times 100\%$$

$$= \frac{100}{3}\% = 33 \frac{1}{3}\%$$

Percentage of IIIrd Part

$$= \frac{6}{15} \times \frac{20}{100}\% = \frac{2 \times 20}{3}\%$$

$$= 2 \times 20\% = 40\%$$

8(ii) 1% 4

$$\text{Sol. Percentage of Ist Part} = \frac{1}{5} \times 100\% \\ = 20\%$$

$$\text{Percentage of IInd Part} = \frac{4}{5} \times 100\% \\ = 4 \times 20\% \\ = 80\% \text{ Ans.}$$

9. Convert the following percentages to decimals:

(i) 28%

$$\text{Sol} = \frac{28}{100} = 0.28 \text{ Ans.}$$

(ii) 3%

$$= \frac{3}{100} = 0.03 \text{ Ans}$$

(iii) $37\frac{1}{2}\%$

$$= \frac{75}{2}\%$$

$$= \frac{75}{2 \times 100}$$

$$= \frac{37.5}{100}$$

$$= 0.375 \text{ Ans}$$

10. Convert the following decimals to

(8)

Percentage:

(i) 0.65

$$= 0.65 \times 100 \%$$

$$= \frac{65}{100} \times 100 \%$$

$$= 65 \% \text{ Ans.}$$

(ii) 0.9

$$= 0.9 \times 100 \%$$

$$= \frac{9}{10} \times 100 \%$$

$$= 90 \% \text{ Ans.}$$

(iii) 2.1

$$= 2.1 \times 100 \%$$

$$= \frac{21}{10} \times 100 \%$$

$$= 21 \times 10 \%$$

$$= 210 \% \text{ Ans.}$$

11. (i) If 65% of students in a class have a bicycle then what percent of the students do not have a bicycle?

Sol. $\because$ 65% of students have a bicycle

$\therefore$ Percentage of students who do not

have a bicycle $= (100 - 65) \%$

$= 35 \% \text{ Ans}$

(ii) We have a basket full of apples, oranges and mangoes. If 50% are apples, 30% are oranges, then what percent are mangoes?

Sol. Percentage of mangoes $= (100 - 50 - 30) \% = 20 \% \text{ Ans}$

12. The population of a city decreased from 25000 to 24500. Find the Percentage decrease. (9)

Sol. Population of a city = 25000

$$\begin{aligned}\text{Population decreased} &= 25000 - 24500 \\ &= 500\end{aligned}$$

$$\text{Percentage decrease} = \frac{500}{25000} \times 100\%$$

$$= \frac{50}{25} \% = 2\% \text{ Ans.}$$

13. Arun bought a plot for Rs. 3,50,000. The next year, the price went up to Rs 3,70,000. What was the Percentage of Price increase?

$$\text{Sol. Percentage of Price increased} = \frac{370000 - 350000}{350000} \times 100\%$$

$$= \frac{20,000}{350000} \times 100\%$$

$$= \frac{200}{35} \%$$

$$= \frac{40}{7} \% \text{ Ans}$$

14. Find

(i) 15% of 250

$$= 250 \times \frac{15}{100} = \frac{75}{2} = 37.5 \text{ Ans.}$$

14 (ii) 25% of 120 litres.

$$\text{Sol} = 120 \times \frac{25}{100}$$

$$= \frac{120}{4}$$

$$= 30 \text{ Ans.}$$

(iii) 4% of 12.5

$$\text{Sol} = 12.5 \times \frac{4}{100}$$

$$= \frac{12.5}{10} \times \frac{1}{25}$$

$$= \frac{5}{10}$$

$$= \frac{1}{2} \text{ Ans}$$

$$= 0.5 \text{ Ans.}$$

(iv) 12% of 250 Rs.

$$= 250 \times \frac{12}{100}$$

$$= \frac{10 \times 12}{4}$$

$$= 10 \times 3$$

$$= 30 \text{ Ans.}$$

15 Multiple Choice Questions:

(i) (c) $66 \frac{2}{3} \%$

(ii) (b) 240

(iii) (d) 2.5%

(iv) (c) 40

(v) (d) 40%