

P.6 MATHEMATICS

LESSON ONE WEEK EIGHT

TOPIC: FRACTIONS

SUB TOPIC: FINDING THE REMAINING PERCENTAGES PARTS

Examples:

1. If 40% of a class is absent, what percentage is present?
What percentage is a present?
Those absent = 40%
Those present = $100\% - 40\%$
 $\underline{\underline{= 60\%}}$
2. 35% of the pupils in a school like rice while 10% like potatoes. If the rest like posho, find percentage of the pupils like posho?
Percentage for rice and potatoes = $35\% + 10\%$
 $= 45\%$
Percentage for posho = $100\% - 45\%$
 $\underline{\underline{= 55\%}}$

ACTIVITY

1. If 45% of a class is absent, what percentage is present?
2. If 60% of the people at a party are females, what percentage is for the males?
3. 65% of the candidates passed in division one, what percentage of the candidates did not pass in division one?
4. 45% of the people in a home like rice while 15% like matoke. If the rest like Irish, find the percentage of people who like Irish?
5. 55% of the pupils in a school like games while 25% like sports. If the rest like music, find percentage of the pupils like music?

TOPIC: FRACTIONS

SUB TOPIC: EXPRESSING QUANTITIES AND PERCENTAGES:

Examples:

1. Write 20 as a percentage of 80.
Fraction = $\frac{20}{80}$
 $= \frac{1}{4} \times 100\%$
 $= \underline{\underline{25\%}}$

2. Amos got 12 out of 25 in a Maths test. Express his mark as a percent.

$$\text{Fraction} = \frac{12}{25}$$

$$\text{Percentage} = \frac{12}{25} \times 100\%$$

$$= 12 \times 4\%$$

$$= \underline{\underline{48\%}}$$

ACTIVITY:

1. Write 30 as a percentage of 50?
2. Write 15 as a percentage of 60?
3. Agnes got 20 out of 25 in an English test. Express her mark as a percent.
4. 30 out of 40 pupils in a class are girls. Express the number of girls as a percent.
5. Abbas answered 18 out of 25 questions in a Maths test. Express the number of questions he answered as a percent.

SUB TOPIC: PERCENTAGES

CONTENT: APPLICATION OF PERCENTAGES

Examples:

1. In a class, there are 40% more boys than girls. If there are 60 girls in the class, how many pupils are in the class?

Let the % age of girls be m.

$$\text{Girls} = m\%$$

$$\text{Boys} = m + 40\%$$

$$m + m + 40 = 100$$

$$2m + 40 = 100$$

$$2m + 40 - 40 = 100 - 40$$

$$2m = 60$$

$$\frac{2m}{2} = \frac{60}{2}$$

$$m = 30$$

$$\underline{\underline{m = 30\%}}$$

$$30\% \text{ gives } 60$$

$$1\% \text{ gives } \frac{60}{30}$$

$$100\% \text{ gives } \frac{60}{30} \times 100$$

$$= 2 \times 100$$

$$= 200$$

$$\underline{\underline{= 200 \text{ pupils}}}$$

2. Nanyonjo earns shs 12,000. She spends 75% and saves the rest.

(i) How much does she spend?

Solution:

$$= 75\% \text{ of sh. } 12,000$$

$$= \frac{75}{100} \times 12,000$$

$$= 75 \times 120$$

$$= 75 \times 120$$

$$= \underline{\underline{\text{Sh. } 9,000}}$$

(ii) How much does she save?

$$(100\% - 75\%) \text{ of } 12,000$$

$$= 25\% \text{ of } 12,000$$

$$= \frac{25}{100} \times \text{sh. } 12000$$

$$= 25 \times \text{sh. } 120$$

$$= 25 \times \text{sh. } 120$$

$$= \underline{\underline{\text{sh. } 3000}}$$

$$\text{Or sh. } 12,000$$

$$\underline{\text{sh. } - 9,000}$$

$$\underline{\underline{\text{sh. } 3,000}}$$

ACTIVITY:

1. If 60% of my salary is spent on food and I save Sh. 60,000. What is my salary?
2. If 20% of my salary is saved on food and I spend the rest which is Sh. 240,000. What is my salary?
3. In a class, there are 20% more girls than boys. If there are 60 boys in the class, how many pupils are in the class?
4. Namuli earns Sh. 320,000. She spends 75% and saves the rest.
 - a) How much does she spend?
 - b) How much does she save?

SUB TOPIC: PERCENTAGE INCREASE

EXAMPLES:

1. Increase 800 by 20%

$$\text{New amount: } = 100\% + 20\% \text{ of old amount}$$

$$= 120\% \times \text{Sh. } 800$$

$$= \frac{120}{100} \times \text{Sh. } 800$$

$$= 120 \times 8$$

$$= \underline{\underline{960}}$$

2. Increase 800 pupils by $12\frac{1}{2}\%$

$$\text{New number} = 100\% + 12\frac{1}{2}\% \text{ of old number}$$

$$= 112\frac{1}{2}\% \text{ of } 800 \text{ pupils}$$

$$= \frac{225}{2}\% \times 800 \text{ pupils}$$

$$= \left(\frac{225}{2} \div \frac{100}{1} \right) \times \frac{800}{1}$$

$$= \frac{225}{2} \times \frac{1}{100} \times \frac{800}{1}$$

$$= (225 \times 4) \text{ pupils}$$

$$= \underline{\underline{900 \text{ pupils}}}$$

3. Increase Sh. 4800 by 10% and then by 20%
- Old amount = Sh. 4800
- 10% increment = $100\% + 10\% = 110\%$
- 20% increment = $100\% + 20\% = 120\%$
- = $110\% \times 120\%$ of Sh. 4800
- = $\frac{110}{100} \times \frac{120}{100} \times 4800$
- = $11 \times 12 \times 48$

New amount = Sh. 6336

ACTIVITY

1. Increase 200 by 20%
2. Increase 400 pupils by $12\frac{1}{2}\%$
3. Increase 600 pupils by $33\frac{1}{3}\%$
4. Increase Sh. 800 by 20% and then by 30%
5. Increase Sh. 5000 by 10% and then by 20%

SUB TOPIC: PERCENTAGE DECREASE

EXAMPLES:

1. Decrease Sh. 1500 by 10%

New amount = $(100\% - 10\%)$ of Sh. 1500

= 90% of Sh. 1500

= $\frac{90}{100} \times \text{Sh. } 1500$

= $90 \times \text{Sh. } 15$

= Sh. 1350
2. Decrease Sh. 12,000 by 15% and then by 20%.

Old amount = Sh. 12,000

10% decrease = $100\% - 15\% = 85\%$

20% decrease = $100\% - 20\% = 80\%$

= $85\% \times 80\%$ of Sh. 12,000

= $\frac{85}{100} \times \frac{80}{100} \times \text{Sh. } 12,000$

= $85 \times 8 \times \text{Sh. } 12$

New amount = Sh. 8,160

3. Decrease 720 dollars by $33\frac{1}{3}\%$

$$\begin{aligned} \text{New percentage} &= 100\% - 33\frac{1}{3}\% \\ &= 66\frac{2}{3}\% \\ \text{New amount} &= 66\frac{2}{3}\% \text{ of 720 dollars} \\ &= \frac{200}{3}\% \text{ of 720 dollars} \\ &= \left(\frac{200}{3} \div \frac{100}{1} \right) \times \frac{720}{1} \text{ dollars} \\ &= \frac{200}{3} \times \frac{1}{1} \times \frac{240}{1} \text{ dollars} \\ &= 2 \times 240 \text{ dollars} \\ &= \underline{\underline{480 \text{ dollars}}} \end{aligned}$$

EVALUATION ACTIVITY:

1. Decrease Sh. 3000 by 20%
2. Decrease 1440 dollars by $33\frac{1}{3}\%$
3. Decrease 2000 dollars by $12\frac{1}{2}\%$
4. Decrease Sh. 2,500 by 10% and then by 20%
5. Decrease Sh. 1,600 by 30% and then by 10%