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## P.6 MATHEMATICS
**LESSON ONE WEEK ONE SECOND PHASE**

**TOPIC:        FRACTION**
**SUB TOPIC:    FORMING RATIOS**
**Examples:**

1. A P.7 class has 20 boys and 50 girls.  What is the ratio of boys to girls?
    The ratio of boys to girls.  = Number of boys
                        Number of girls
                = 2̶0̶        lowest terms      2
                  5̶0̶                           5

**The ratio of boys to girls is 2 : 5 and the ratio of girls to boys is 5 : 2**

2. Expressing 200meters as a ratio of one kilometer.
    Ratio = 2̶0̶0̶m        1$^{st}$ change 1km to m
            1̶0̶0̶0̶m
        = 2̶ $^1$
          1̶0̶ $_5$

    **Ratio = 1 : 5**

3. Express $\frac{1}{3}$ : $\frac{1}{4}$ as a ratio in its simplest form

    $\frac{1}{3}$ : $\frac{1}{4}$ = $\frac{1}{3}$ ÷ $\frac{1}{4}$
            = $\frac{1}{3}$ x $\frac{4}{1}$
            = $\frac{4}{3}$
    **= 4 : 3**

**Activity:**

a) Express 20cm as a ratio of 2m.
b) Express 600m as a ratio of 2km.
c) 30 of the 50 pupils in a class are girls. Find the ratio of girls to the whole class?
d) A basket has 15 oranges and 20 mangoes.  Find the ratio of mangoes to oranges?
e) Simplify ½ : ¼
f) What is $^3/_5$ : 3

**TOPIC:    FRACTION**

**SUB-TOPIC:    APPLICATION OF RATIOS**

**Examples:**

1.    The ratio of girls to boys in a class is 3 : 5 respectively.  If there are 20 more boys than girls,

a) Calculate the total number of pupils in the class.

| **Total ratio** | **Difference in ratio** |
|---|---|
| 3 + 5 = 8 | Boys – Girls |
| | 5   – 3 = 2 parts |

**Total number of pupils**

2 parts = 20
1 part = 20 ÷ 2

1 part = 10
8 parts = 10 x 8
        **= 80 pupils.**

b) Find the number of girls in the class

Girl's ratio   X   number of pupils
Total ratio

$$\frac{3}{\underset{1}{8}} \times \overset{10}{80}$$

**= 30 gilrs**

**Activity**

1.    The ratio of boys to girls is 2 to 3.  If there are 6 boys, how many girls are there?

2.    The ratio of cows to goats is a farm if 3 to 4. If there are 6 cows less than the number of goats,

a) Find the number of animals on the farm altogether.

b) How many goats are on the farm?

3.    The head teacher Sir Apollo Mengo distributed books to P.4, P.5 and P.6 in the ratio  of 2 : 3 : 5 respectively.  If P.6 got 50 books less than P.5;

a)    How many books were shared altogether?

b)    Find the number of books P.4 got

**TOPIC:** **FRACTIONS**
**SUB TOPIC:** **INCREASING AND DECREASING QUANTITIES IN A GIVEN RATIO**
**Examples:**
1. Increase 80kg in the ratio of 5:4

   New  : old

   5    :  4

   ?    : 80kg


4 parts make 80kg

1 part makes   $\frac{(80)}{4}$ = 20

5 parts make (20  x 5)kg


**= 100kg**.

**Example 2**:

Decrease sh. 2000 in the ratio of 3:5

New  old

3    5

?    2000


5 parts make sh. 2000

1 part makes sh. $\frac{2000}{5}$ = 400

3 parts make = sh. 400 x 3

**= sh. 1200**


**ACTIVITY:**
1. Increase the following as instructed
   a)   500 cows in the ratio 7 : 5
   b)   800 books in the ratio 5 : 2
   c)   Sh. 3000 in the ratio 4 : 3
2. Decrease the following as instructed
   a)   1500 mangoes in the ratio 2 : 3
   b)   2800 pens in the ratio 4 : 7
   c)   Sh. 6000 in the ratio 2 : 5

**TOPIC:**          **FRACTIONS**
**SUB TOPIC:**     **FINDING RATIO OF INCREASE OR DECREASE**
**Examples:**
1. In what ratio must 30 be decreased to 24?

   **New** : **old**
   24    : 30
   24    : 30      **reduce by the common factor**
    6        6
=  **4**  : **5**

2. In what ratio must 30 be increased to 50?
   New  :     Old
   50   :     30
   50   :     30
   10         10
**= 5**    **:**      **3**

## ACTIVITY:
1. In what ratio must 20 be decreased to 15?
2. In what ratio must 75 be decreased to 30?
3. In what ratio must 12 be decreased to 8?
4. In what ratio must 25 be increased to 50?
5. In what ratio must 40 be increased to 60?
6. In what ratio must 18 be increased to 30?

**TOPIC:**          **FRACTION**
**SUB TOPIC:**     **DIRECT AND INDIRECT PROPORTION**
Examples:
1. Sh. 2400 is the cost of 2 books. Find the cost of 5 similar books.

   2 parts make sh. 2400.

   1 part makes sh. $\frac{2400}{2}$ = sh. 1200

   5 parts make sh. 1200 x 5
∴ **5 books cost sh. 6000**

2. 35 men can complete a certain Job in 8 months.  How many more men can take to do the same job in 1 month less?

1 month less = 8 – 1

$$= 7 \text{ months}$$

| Months | | Men |
|---|---|---|
| 8 months | ⟶ | 35 men |
| 1 month | ⟶ | (35 x 8) men **(280men)** |
| 7 months | ⟶ | $\dfrac{(\cancel{35}^5 \text{ x } 8) \text{ men}}{\cancel{7}}$ |

$$= 40 \text{ men}$$

**More men now.**

40 men – 35 men

**= 5 more men**

## ACTIVITY:
1. The cost of 5 dresses is sh. 75,000. Find the cost of 2 similar dresses.
2. Sh. 9000 is the cost of 6 rulers. Find the cost of 4 similar rulers.
3. 4 men take 9 days to complete a job.  How long will 12 men take to finish the job at the same rate?
4. A car travelling at a speed of 20km/hr covers a journey in 4 hours.  How long will it take to cover the same journey at 16km/hr?
5. 5 men can dig a shamba in 8 days each earning sh. 2000 per day.  How much money will be required to pay the men who will do the same job in only 4 days?