TOPIC 7	LENGTH	INTERVENSI

Topic : Length

Learning Area : Computation of Length

Learning Objective : Use and apply fractional computation to problems involving length.

Learning Outcomes : Compute length from a situation expressed in fraction.

Teaching Aids

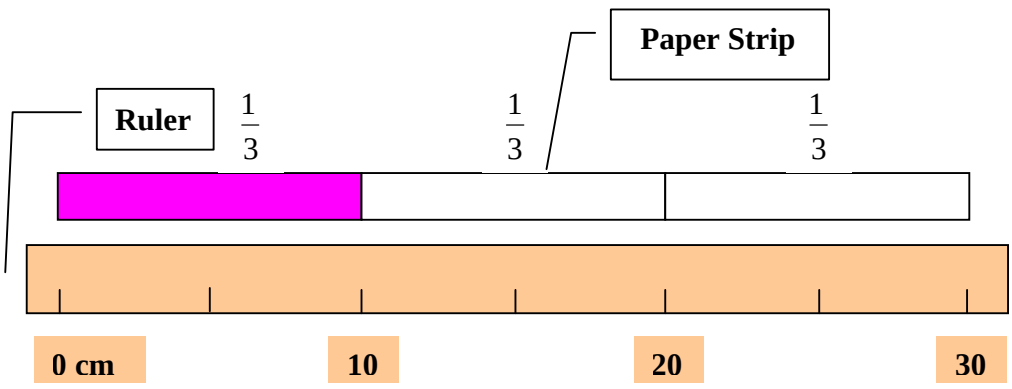
Duration: 1 hour

Diagrams, number lines, paper strips, scissors, ruler, a roll of string and worksheets.

Set Induction

1. Teacher shows a paper strip to model a situation expressed in fraction.
2. Teacher distributes the paper strips to each pupil and gives clear instructions.
3. Pupils do hands-on activity.

Teacher's Instructions:	Expected Answers:
o *First, measure and cut a paper strip with the length of 30 cm.* o *Now, fold the paper strip into three equal parts.* o *Next, colour any one part of the paper strip.* o *What is the fraction of the coloured part?* o *Class, what is the length of the part that you have coloured, in cm?*	*Teacher guides pupils to answer in full sentence.* o *The fraction of the coloured part is one third.* o *The part that I have coloured is 10cm long.*



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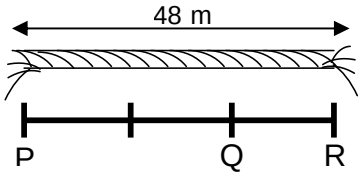
Step 1: Solve problem involving computation of length.

Teacher poses the question to the class:

The diagram shows the length of a rope. QR is $\frac{1}{3}$ of PR.



Calculate the length of PQ in m.

Pupils' Activity:

1. Pupils find the answer by Polya's Model with different methods.

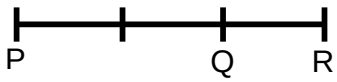
Understand the problem : Length of PR = ☐ m

Length of QR = ☐ of PR

Length of PQ = ?

Devise a plan : Draw a diagram.
Do (—) then (×) / Do (×) then (—) / Do (÷) then (+) / Do (÷) then (×)

Solve (Method 1):



$PR - QR = PQ$

$\frac{3}{3} - \frac{1}{3} = \frac{2}{3}$

$\frac{2}{3} \times 48\text{ m} = 32\text{ m}$

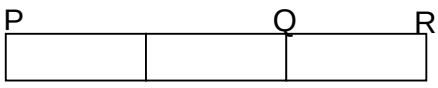
(Method 2): $\frac{1}{3} \times 48$ m

= 16 m

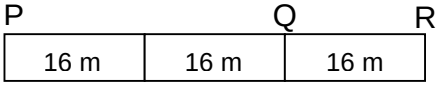
48 m – 16 m

= 32 m

Look back (Method 3) :



$3\overline{)48\text{ m}}$ = 16 m



16 m + 16 m OR 16 m × 2

= 32 m

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Teacher's Instruction:	Expected Answers:
	Teacher guides pupils to answer in full sentences.
o *Teacher asks pupils what is the length of PR?*	o *48 m.*
o *What is the fraction of QR?*	o *QR is one third of PR.*
o *What is the length of PQ in metre?*	o *PQ is two third of PR*
	o *The length of PQ is 32 m.*

Step 2: Solve problem in real context involving of length.

Pupils' Activity:

1. Pupils are divided into groups.
2. Teacher prepares some questions.
3. Each group answers a set of questions by Polya's Model.
   3 steps – Understand the problem, Devise a plan and Solve the problem.
4. The groups pass and rotate their findings to the next group.
5. The groups will check the answer by the 4th Step of Polya's Model – Looking back method.
6. Pupils proceed with the next question.

Teacher's Instruction:

- *Alright children, now get into …. groups.*
- *Here are some questions for you to answer.*
- *Each group will answer the question with the first 3-steps of Polya's Model.*
- *You can choose any method to solve the problems.*
- *Then, let the other group to check your answer.*
- *Now, let's practice with more questions.*

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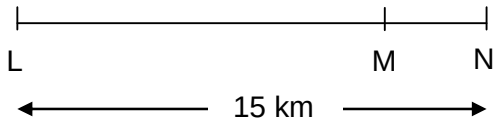
Example:

Question 1

The diagram shows three places L, M and N. The distance from M to N is $\frac{1}{5}$ of the distance from L to N.



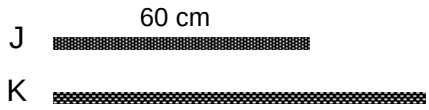
What is the distance from M to N?

Question 2

$\frac{1}{7}$ of 17.5 m of cloth is used to make a curtain. Find the length of the cloth used, in cm.

Question 3

The diagram shows two ropes, J and K. The length of rope K is $\frac{1}{3}$ longer than the length of rope J.



Find the length of rope K, in cm.

Question 4

Azman's height is 1.74 m. Rosli's height is $\frac{5}{6}$ of Azman's height. Calculate their difference, in cm.

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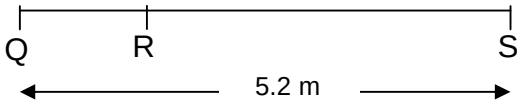
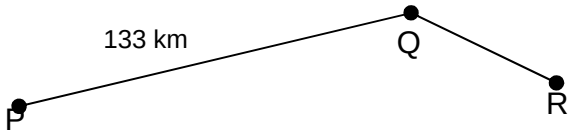
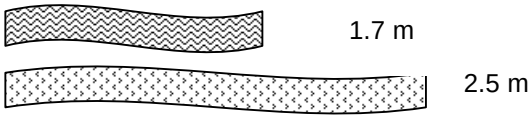
Step 3: Worksheet

1	The diagram shows the length of a string. The length of QR is $\frac{1}{4}$ of the length of QS.  Calculate the length of QR, in m.	
2	The diagram shows the road connecting three villages, P, Q and R. The distance from Q to R is $\frac{1}{7}$ of the distance from P to Q.  What is the total distance P to R, in km?	
3	The diagram shows a straight wooden bar. The length of XY is $\frac{1}{4}$ of the length of XZ.  What is the length of XZ, in m?	
4	The diagram shows the length of two ribbons. $\frac{2}{3}$ of their total length is used to tie a present.  Find the length of ribbon used to tie the present, in cm.	

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Consolidation

- *Alright, children.*
- *Today, we have learnt how to solve problems involving computation of length.*
- *Remember; use the Four Steps Polya's Model to solve problems.*
- *You are encouraged to use as many methods as you can. For example, using a diagram, using number line, paper strips, strings, mental calculations or normal operation calculations.*
- *For further activities, please do the exercises in your Text Book. Have fun with Mathematics!*

Further Activities

Text book

1. Let's Work Together – Page 152
2. Let's Do It – Page 153
3. Let's Do It – Page 156
4. Let's Wrap Up – Page 157 and 158

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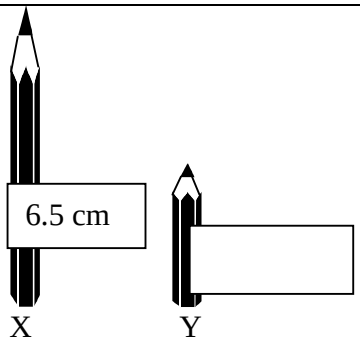
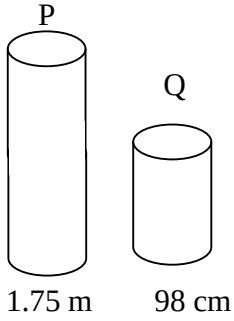
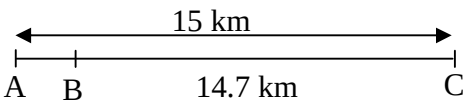
Worksheet *(Extract from Masmatics pg 34&35)*

Solving daily problems

1	Diagram shows the length of a wire.  32.55 m The wire is cut equally into 7 parts. What is the length, in m, of each part?	4	Puan Eda needs 2.42 m of clothes to make 2 pieces of pillow sheets. How many metres are needed to make 10 pieces of pillow sheets of similar size?
2	 Diagram shows the length of two pencils. What is the difference in length, in cm, between pencil X and pencil Y?	5	Diagram shows two cylinders P and Q.  What is the total height, in m, of the cylinders?
3	Diagram shows a map of three villages; A, B and C.  Find the distance, in m, from A to B.	6	The length of a ribbon is 3.4 m. It is cut equally into five parts. What is the length, in cm, for each part?

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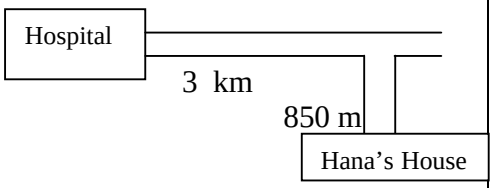
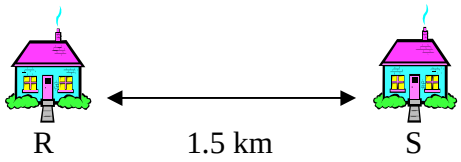
7	Hotel Juli has 8 storeys. The height of each storey is 4.25 m. Find the height, in m, of the hotel.	10	Liza needs 1.8 m of cloth to make a dress. How many metres of cloth does she need to make 5 similar dresses?
8	 Diagram above shows a road map. What is the distance, in km, from Hana's house to the hospital?	11	 Diagram shows the distance between house R and house S. How many pipes are needed to make a pipeline linking the two houses if each pipe is only 3 m long?
9	Alia's height is 1.57 m. While Sheila's height is 9 cm less than Alia's. What is, in m, the height of Sheila?	12	A piece of cloth is 9 m long. $\frac{4}{5}$ of the length has been used. What is the length, in m, that is not been used?