



# PUZZLING CARTOON

## - LUDO'S ROPE -



### Educational Goals

- ❖ Develop logic
- ❖ Highlight the playful potential of mathematics
- ❖ Understand fractions and ratios

### Key Features of the Targeted Competencies

- ❖ To define the elements of the mathematical situation
- ❖ To mobilize mathematical concepts and processes appropriate to the given situation
- ❖ To justify actions or statements by referring to mathematical concepts and processes

### Concepts Used

- ❖ Arithmetic (additions and subtraction)
- ❖ Fractions
- ❖ Common denominators
- ❖ Cross-multiplication algorithm

### Materials

- ❖ Video of the puzzle
- ❖ Pens and papers
- ❖ Written version of the puzzle (optional)

**Targeted Academic Level**  
Grades 7-8

**Mathematical Field Concerned**



**Suggested Teaching Method**



**Time Requires**  
Approximately 35 minutes



# Suggested Process



## Step 1: Introduction (3 minutes)

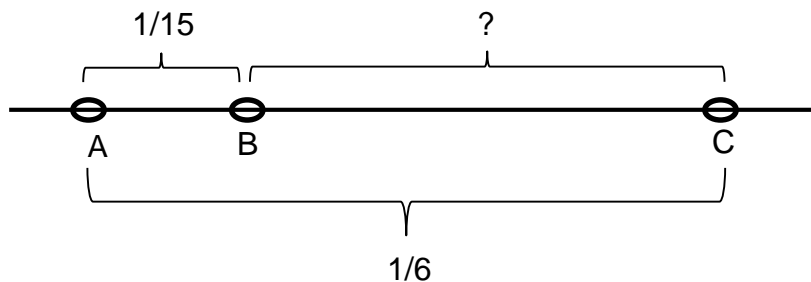
Present the puzzle to your class a first time. You can also choose to play the puzzle's video ([www.amazingmaths.ulaval.ca](http://www.amazingmaths.ulaval.ca)). To allow your students the opportunity to properly understand the information and instructions, present the puzzle (or the video) a second time.

A written version of the puzzle is available via the Explanation Sheet. If you believe it is necessary, or that it would be helpful, project the puzzle's instructions on the board or pass copies to your students.

## Step 2: Find solutions (15 minutes)

Place the students in pairs and ask them to try to find the solution. Encourage your students to write down the information obtained from the problem's statements.

To help ease their comprehension, suggest to your students to represent the rope and the information obtained from the problem in a similar manner:



Here are some hints and questions you can offer your students to guide their thinking:

- Which operation allows us to define the relationship between segments  $\overline{AB}$ ,  $\overline{BC}$  and  $\overline{AC}$ ? ( $\overline{AB} + \overline{BC} = \overline{AC}$ .)
- Based on the rope's total length, how can we find the length of the  $\overline{BC}$  segment? ( $\overline{AC} - \overline{AB} = \overline{BC}$ )
- How can we subtract fractions that have different denominators? (By finding a common denominator.)
- Knowing that the length of the  $\overline{AB}$  segment does 2 full turns of the tree trunk. Which fraction of the total length does this segment represent? ( $2/30$ )
- How can we find the number of turns the  $\overline{BC}$  segment can do?

## Step 3: Share solutions (10 minutes)

To share the solution with your class, see the *Ludo's Rope* Explanation Sheet.

Ask teams to share the solutions they found and to explain how they found the solution. Ask if other teams found the same answer by using different strategies.

## Step 4: Solve the puzzle (5 minutes)

If the students were initially unsuccessful in solving the puzzle, they may want time to solve it now that they have seen the solution.