



PUZZLING CARTOON

- LANDSCAPING -



Educational Goals

- ❖ Develop logic
- ❖ Highlight the playful potential of mathematics
- ❖ Bring the student to construct relations allowing to calculate a circle's area

Key Features of the Targeted Competency

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

Concepts Used

- ❖ Highlighting
- ❖ Simplification of mathematical expressions
- ❖ Area ratio
- ❖ Circle properties
- ❖ Inclusion-exclusion principle

Materials

- ❖ Video of the puzzle
- ❖ Sheets of paper
- ❖ Pencils
- ❖ Written copies of the puzzle (optional)

Targeted Academic Levels
Grades 8 to 11

Mathematical Field Concerned



Suggested Teaching Formula



Time Required
Approximately 20 minutes



SUGGESTED PROCESS



Step 1: Introduction (2 minutes)

Present the video of the puzzle a first time (www.amazingmaths.ulaval.ca).

A written version of the puzzle is available via the Explanation Sheet. If you believe it is necessary, you can project it or distribute copies to your students.

Present the video a second time to allow the students to thoroughly understand the information.

Step 2: Finding the solution (13 minutes)

Place the students in pairs so they can try to find the solution. To help the students, you may encourage them to try to calculate the area of the circles together (the three of them, the two middle ones, then the small one), but keeping r as an unknown. If the students start by searching for the radius' value, you may advise them not to evaluate the value $\sqrt{\frac{114}{\pi}}$ with the calculator, since it will simplify itself later in the problem.

Step 3: Reveal the solution (5 minutes)

Refer to the Explanation Sheet for the puzzle "Landscaping".