

2007 UQ/QAMT Problem Solving Competition - Year 8 Paper

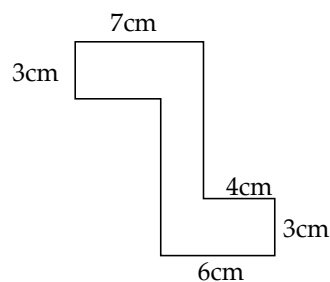
All questions have equal value.

Question 1

What is the largest number of pieces that you can divide a loaf of bread into using just 3 straight cuts? (The pieces may not be moved between cuts.)

Question 2

The area of the figure below is 55 cm^2 . Find the perimeter.



Question 3

Insert parentheses into the following expression to make the largest possible number.

$$1 \div 2 \div 3 \div 4 \div 5 \div 6$$

Question 4

The positive integers are written down in binary notation. All the integers with an odd number of 1s in their binary expansions are removed. Find the 16th remaining number.

Question 5

John, Emma, and Thomas went bird watching. Each of them saw one bird that none of the others did. Each pair saw one bird that the third did not. And one bird was seen by all three. Of the birds John saw, two were yellow. Of the birds Emma saw, three were yellow. Of the birds Thomas saw, four were yellow. How many yellow birds were seen in all?

Question 6

Two vertical flag poles, 20 and 80 metres high, stand apart on a horizontal plane. Find the height of the point of intersection of the lines from the top of each pole to the foot of the other.