

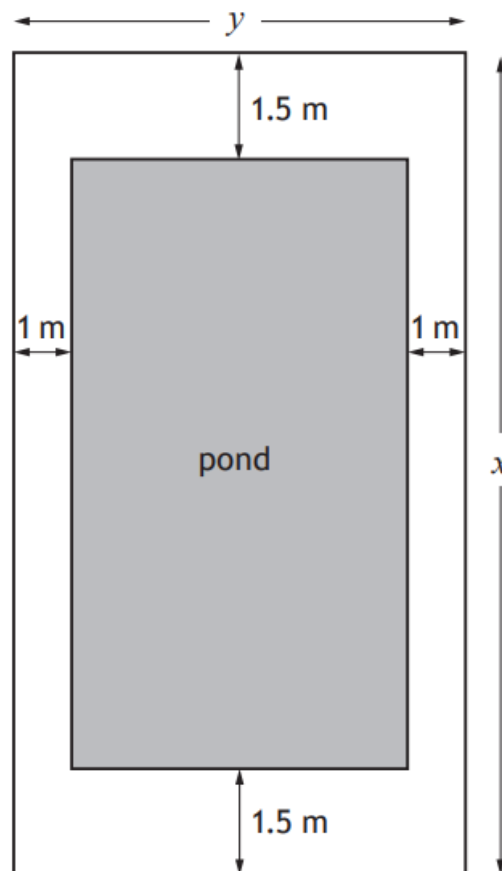
Higher Maths  
SQA 2022 Paper 2  
Question 8



A rectangular plot consists of a rectangular pond surrounded by a path.

The length and breadth of the plot are  $x$  metres and  $y$  metres respectively.

The path is 1.5 metres wide at the ends of the pond and 1 metre wide along the other sides as shown.



The total area of the pond and path together is 150 square metres.

(a) Show that the area of the pond,  $A$  square metres, is given by

$$A(x) = 156 - 2x - \frac{450}{x}. \quad 3$$

(b) Determine the maximum area of the pond. 6

Answers:

(a) See marking instructions.

(b)  $96 \text{ m}^2$