

### MATC9 Ch02.5 Key Concepts 1 Maximizing the Area of a Rectangle (Four Sides) Worked Example

**Example:** What is the minimum amount of fencing needed to enclose an area of  $225 \text{ m}^2$ ?

**Solution:** The maximum area enclosed occurs when a square shape is chosen. The side of the square can be calculated:

$$\begin{aligned}s &= \sqrt{225} \\ &= 15 \text{ m}\end{aligned}$$

Therefore, the amount of fencing needed is  $4 \times 15 = 60 \text{ m}$ .

**Practice:**

1. What is the minimum amount of fencing required to enclose an area of  $1600 \text{ m}^2$ ?

2. What is the minimum amount of fencing required to enclose an area of  $1 \text{ km}^2$ ?

Answers: 1. 160 m 2. 4 km