Discussion Problems
Step 3: Area of Rectangles

National Curriculum Objectives:

Mathematics Year 5: (5M7b) Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes

About this resource:

This resource has been designed for pupils who understand the concepts within this step. It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More Year 5 Perimeter and Area resources.

Did you like this resource? Don't forget to review it on our website.

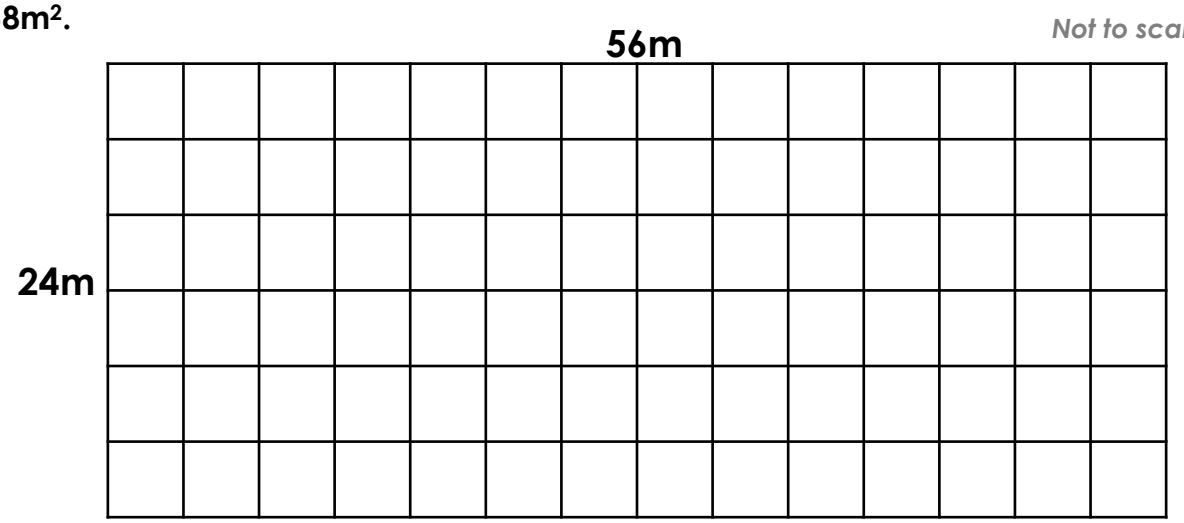
Area of Rectangles

1. Tarquin is redesigning his garden.

Tarquin's garden must include:
- A rectangular patio area
- A rectangular shed
- A rectangular vegetable patch
- A rectangular swimming pool no larger than 192m^2

The rest of his garden will be turf and the total of the new areas in his garden must be 768m^2.

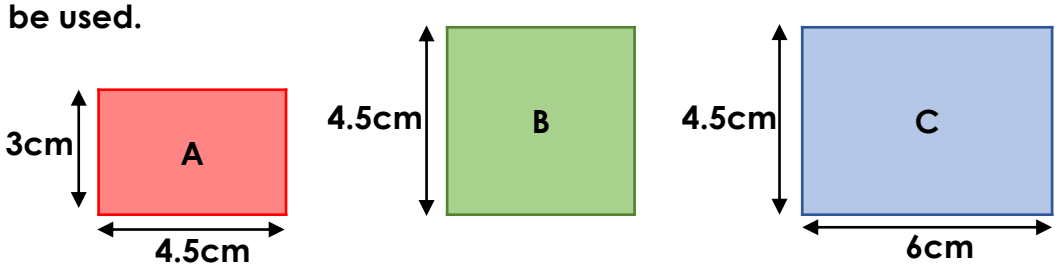
Not to scale

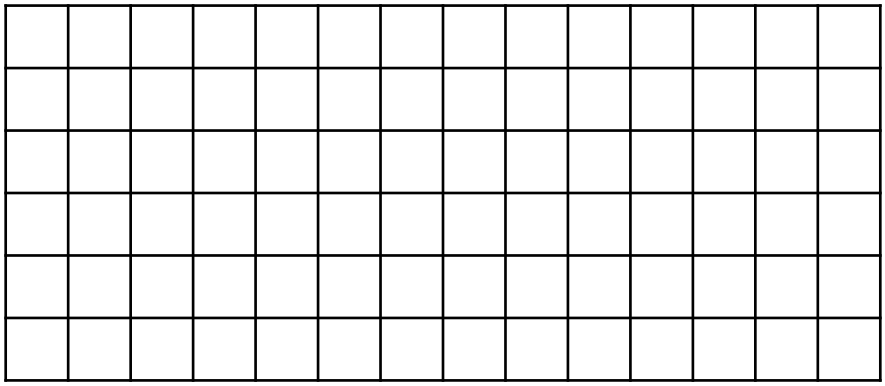


Explore the possible size and positions of the new areas in his garden.

DP

2. Find the areas of the shapes and explore how they can fit together within the grid (they can be rotated). You can use each shape more than once but not all shapes have to be used.





Not to scale

What is the total area of the grid?
What is the total area you have used of each shape type?

DP

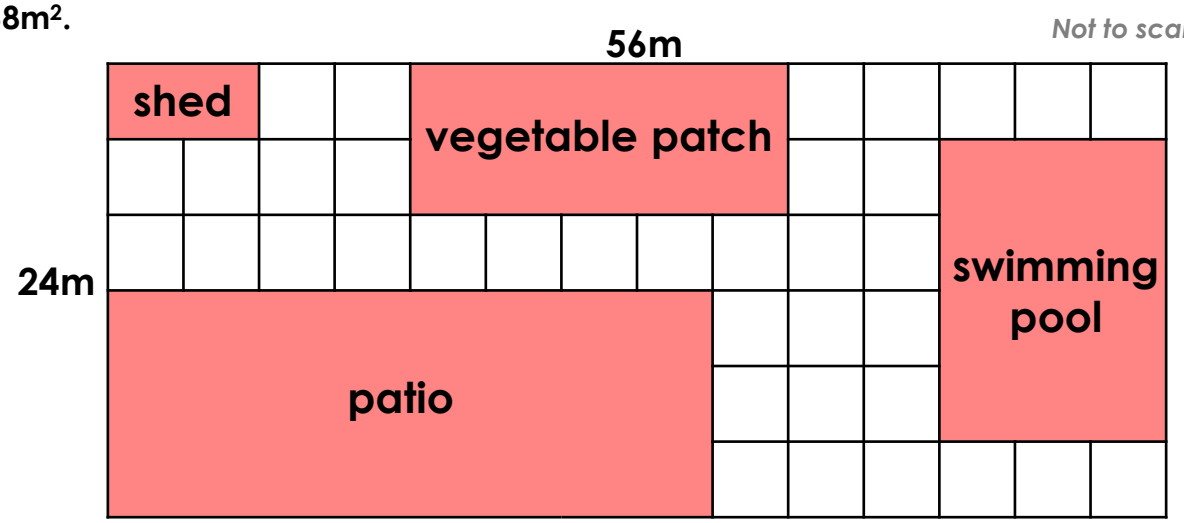
Area of Rectangles

1. Tarquin is redesigning his garden. Various answers, for example:

Tarquin's garden must include:
- A rectangular patio area $32 \times 12 = 384m^2$
- A rectangular shed $8 \times 4 = 32m^2$
- A rectangular vegetable patch $20 \times 8 = 160m^2$
- A rectangular swimming pool no larger than $192m^2$ $12 \times 16 = 192m^2$

The rest of his garden will be turf and the total of the new areas in his garden must be $768m^2$.

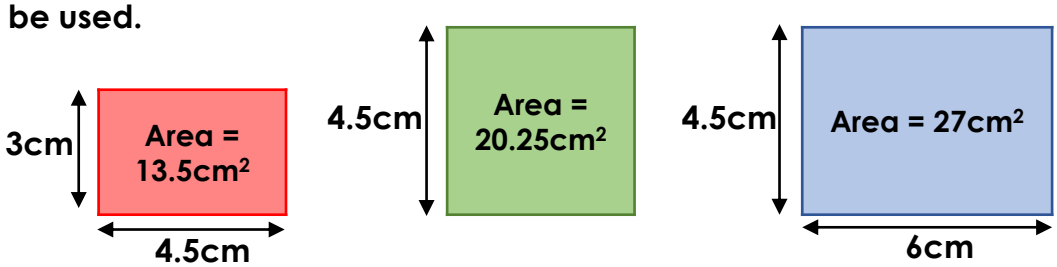
Not to scale

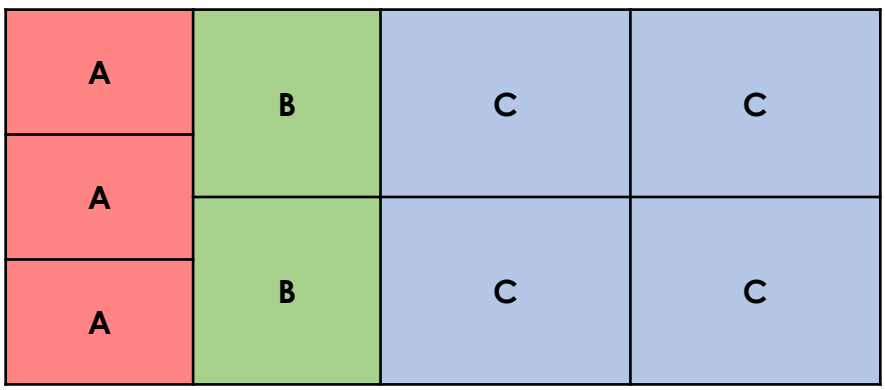


Explore the possible size and positions of the new areas in his garden.

DP

2. Find the areas of the shapes and explore how they can fit together within the grid (they can be rotated). You can use each shape more than once but not all shapes have to be used.





Not to scale

What is the total area of the grid? $189cm^2$

What is the total area you have used of each shape type?

Various answers, for example: A = $40.5cm^2$; B = $40.5cm^2$; C = $108cm^2$

DP