Whitstone School
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Maths Home Learning Task 1

Year 7

Ponds

Name _____

Tutor Group _____

Teacher _____

Given out: Monday 23 September Hand in: Monday 30 September

Parent/Carer Comment
Staff Comment ATL
Target

Information and instructions

Please complete **all tasks** to the best of your ability. The tasks get more challenging as you progress through the questions.

Please do not forget to complete the self-evaluation sheet at the end of your booklet.

Key words: terms, sequence, rule, area, perimeter, scale, key.

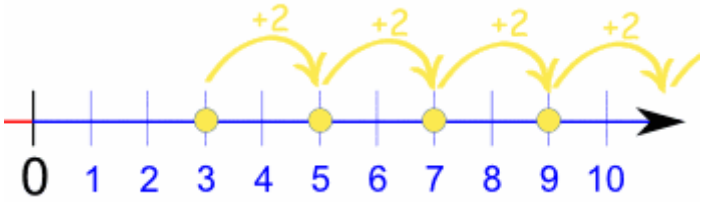
Web site support www.hegartymaths.com

What is a Sequence?

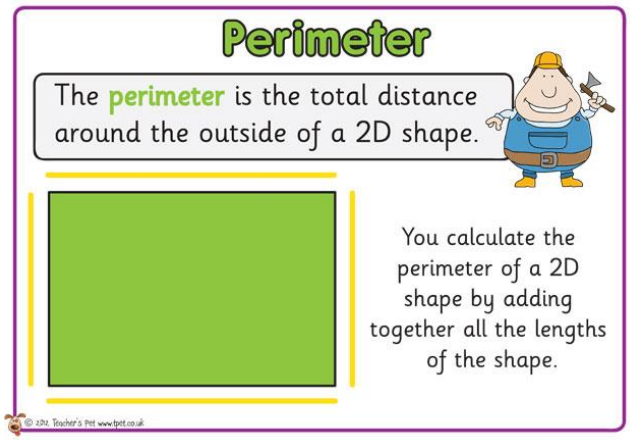
A Sequence is a set of things (usually numbers) that are in order.

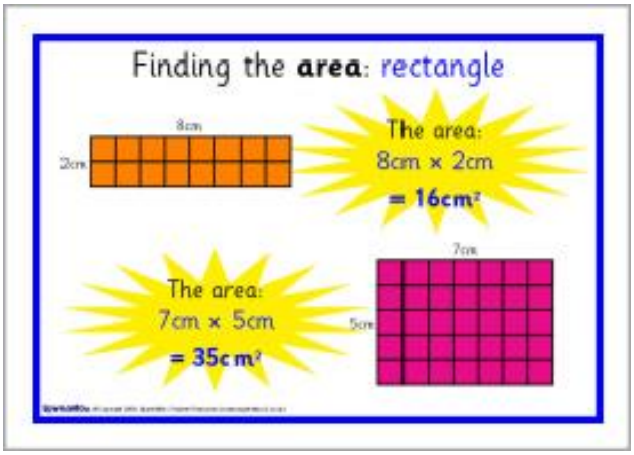
A Sequence usually has a **Rule**, which is a way to find the value of each term.

Example: the sequence {3, 5, 7, 9, ...} starts at 3 and jumps 2 every time:



For more information visit http://www.mathsisfun.com/algebra/sequences-series.html





Task 1: Sequences

Write the next three terms in the following sequences

1. The rule is add 2: 22, 24, 26, ☐ ☐ ☐

2. The rule is add 20: 10, 30, 50, ☐ ☐ ☐

3. The rule is subtract 2: 26, 24, 22, ☐ ☐ ☐

4. The rule is subtract 20: 120, 100, 80, ☐ ☐ ☐

5. The rule is multiply by 2: 1, 2, 4, 8, ☐ ☐ ☐

6. The rule is multiply by 10: 1, 10, 100, ☐ ☐ ☐

7. The rule is divide by 2: 200, 100, 50, ☐ ☐ ☐

8. The rule is divide by 10: 10000, 1000, ☐ ☐ ☐

9. The rule is triple it: -2, -6, -18, ☐ ☐ ☐

10. The rule is add 1 and square it: 1, 4, 25 ☐ ☐ ☐

<u>Task 2: Accuracy in drawing.</u> You will need a ruler for this task.

Draw 3 different rectangles with an area less than $30cm^2$ accurately in the space below. Write the area and perimeter next to each diagram.

Rectangle 1:

The area =

The perimeter=

Rectangle 2:

The area =

The perimeter=

Rectangle 3:

The area =

The perimeter=

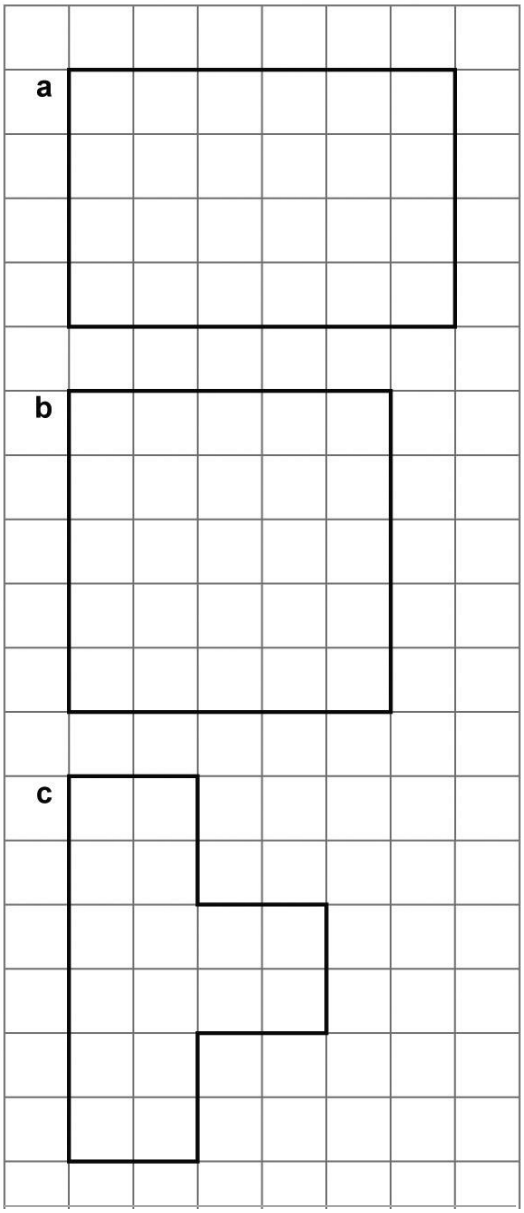
Task 3: Area and perimeter

Calculate the area and perimeter of the following shapes.

1 These diagrams are drawn on centimetre squared paper (not to scale). For each shape find:

i the perimeter

ii the area by counting squares.



Perimeter of a =

Area of a =

Perimeter of b =

Area of b =

Perimeter of c =

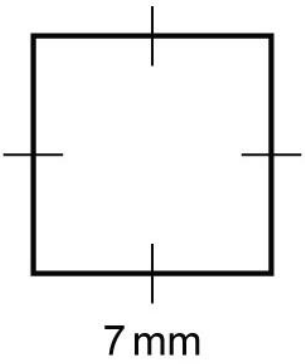
Area of c =

Task 4: Area and perimeter

2 For the shape below work out:

i the area

ii the perimeter.



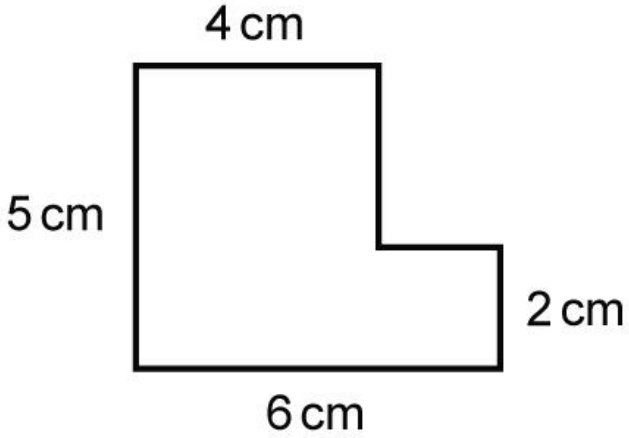
The area of the shape =

The perimeter of the shape =

3 For the shape below work out:

i the area

ii the perimeter.

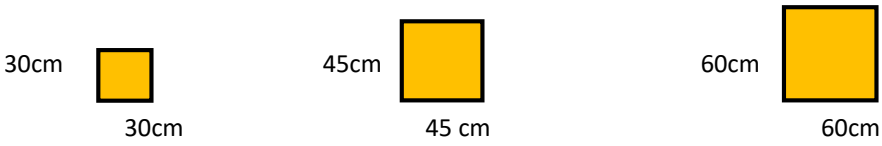


The area of the shape =

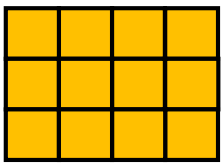
The perimeter of the shape =

Task 5. Paving Slabs

A garden centre sells paving slabs in these sizes:

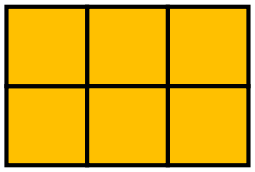


Twelve 30cm paving slabs fit like this



(120cm by 90 cm)

Six 45cm paving slabs fit like this

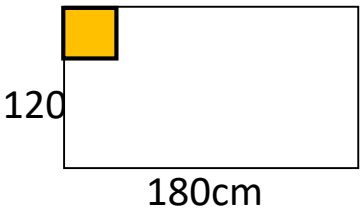


(135cm by 90cm)

How many slabs of size given will be needed for these patios?

1) Using 30cm paving slabs?

30cm

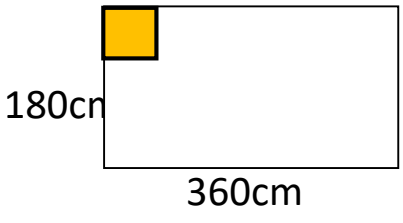


Not to scale

Answer:

2) Using 60cm paving slabs?

60cm

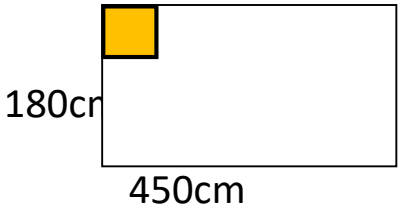


Not to scale

Answer:

3) Using 45cm paving slabs?

45cm

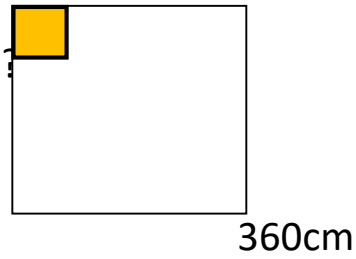


Not to scale

Answer:

4) Using 60cm paving slabs?

60cm



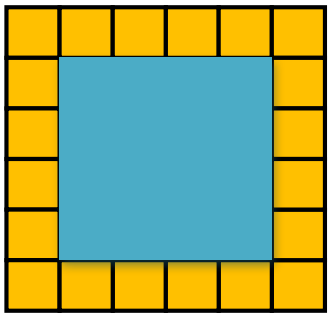
Not to scale

Answer:

Task 6. Paving Slabs around a pond

Mrs Robinson is designing a pond and is planning to put paving slabs around the outside. She has square slabs of side 50cm.

Here is her first design:



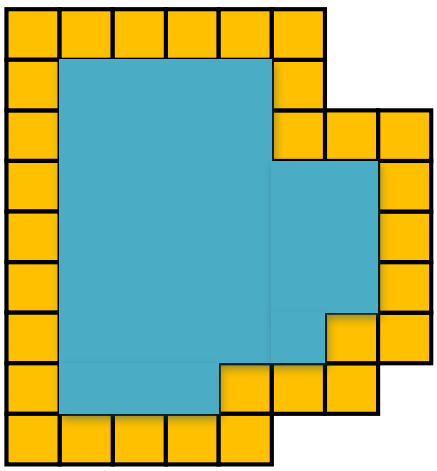
3m

3m

This design uses 20 paving slabs.

(50cm by 50cm)

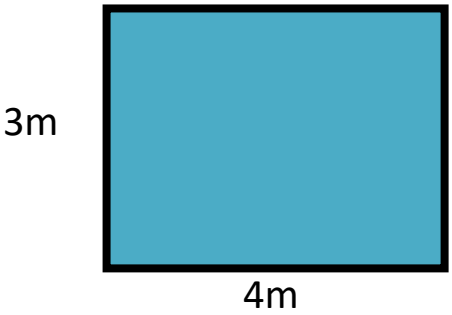
Here is her second design:

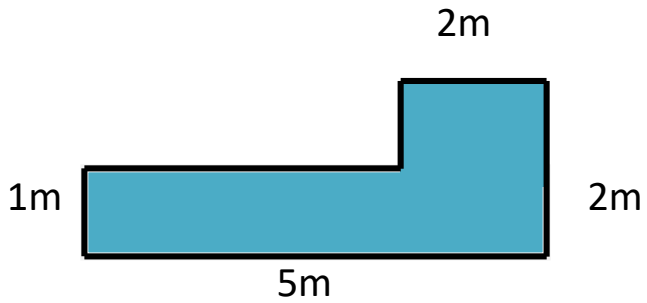


This design uses 30 paving slabs.

(50cm by 50cm)

1a) Mrs Robinson is investigating how many slabs are needed for two different ponds. Sketches of the ponds are shown below.





She works out that both ponds need the same amount of slabs. Is she correct? You must justify your answer (show your working out clearly).

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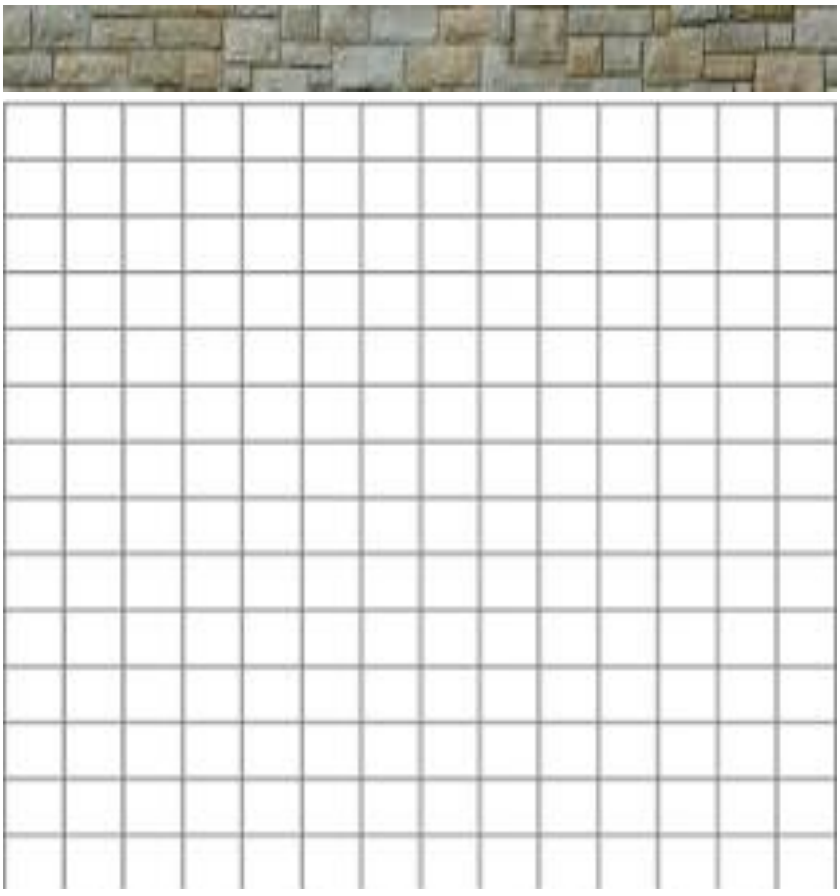
1b) In Mrs Robinson's garden is a wall of length 10 metres. She is thinking of building her pond next to the wall, for example:

10m

50 cm by 50cm

Design a pond next to a wall that uses 20 paving slabs.

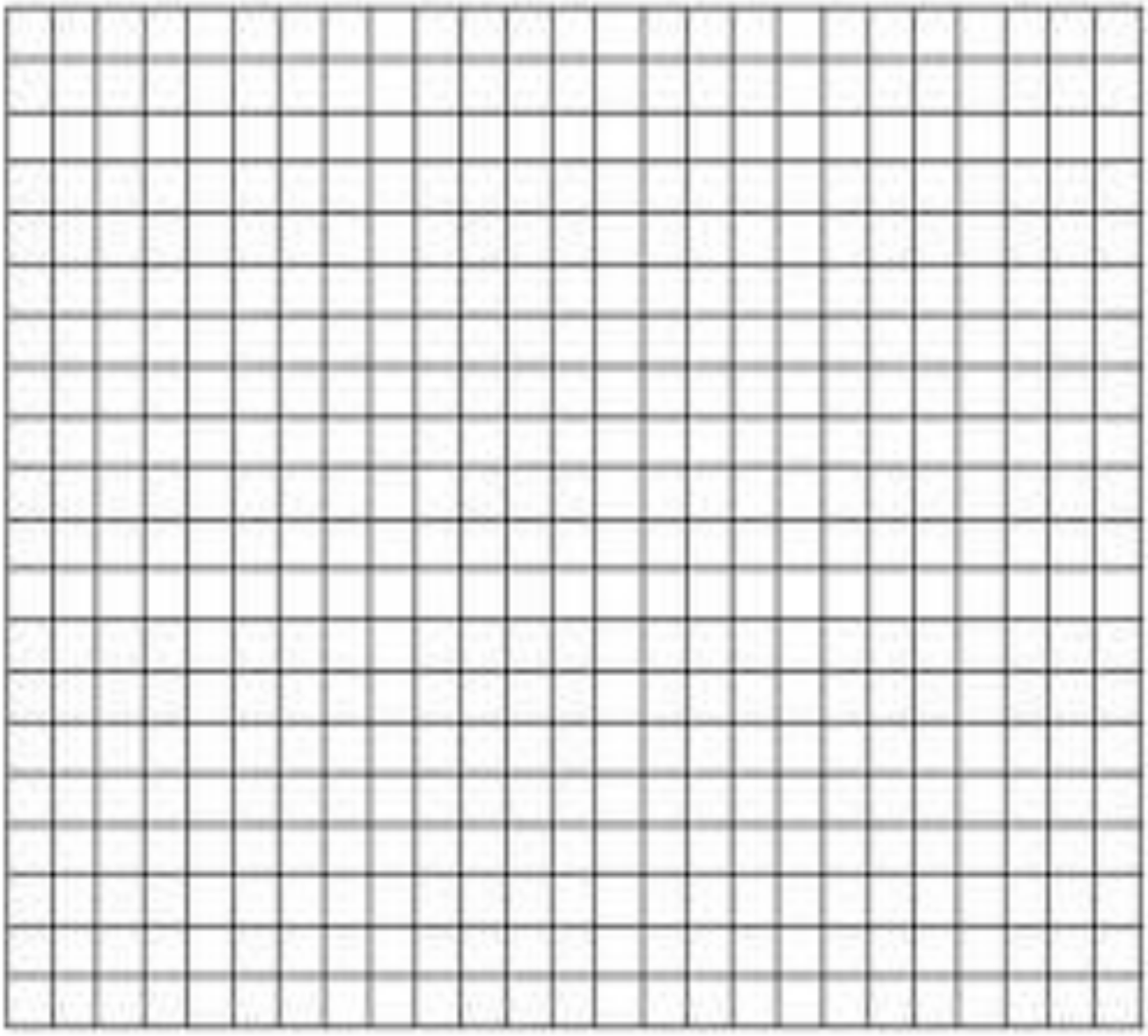


Task 7. Design your own garden

Your task is to design a garden with a pond of 20m^2.

The garden must be 150m^2 but can be any shape.

Include any extra features which you think would enhance your space, patio area, lawn, trees, flower beds etc.

Remember the plan of your garden needs to be drawn accurately and to scale with a key.

You might also like to research how much it would cost to create your garden.