



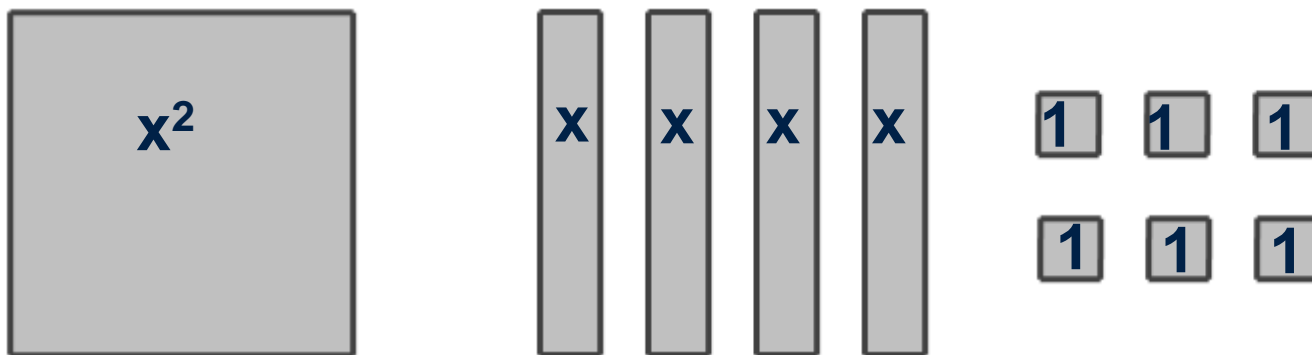
**Advanced Mathematics
Support Programme®**

Completing the Square

Making Squares

Squares can be made using the shapes – but they may be incomplete or have some single squares left over.

Start with one x squared, four x by 1 rectangles and six single squares.

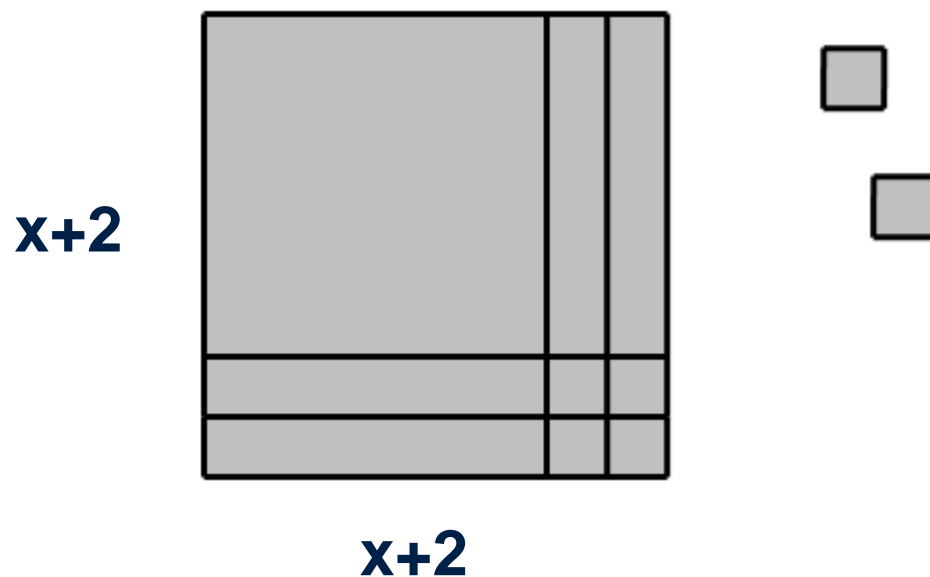


What area do you have?

$$\text{Area} = x^2 + 4x + 6$$

Making Squares

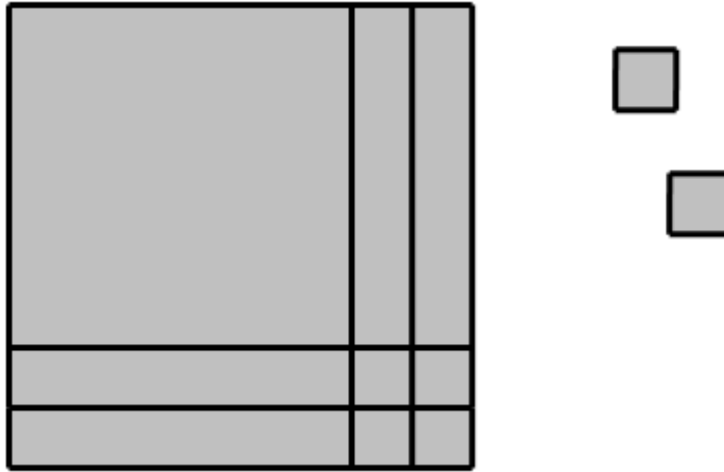
Make a square using all the pieces – fitting them edge to edge.
 You must use the large square and all of the rectangles



What size is the square? $(x+2)^2$

How many pieces do you have left over? **2**

Making Squares



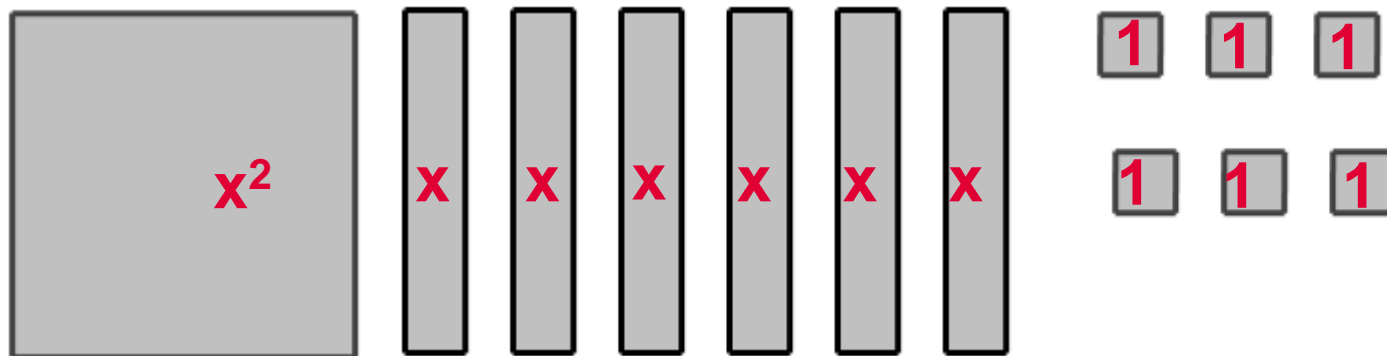
$$\text{Area} = x^2 + 4x + 6 = (x+2)(x+2) + 2$$

$$x^2 + 4x + 6 = (x+2)^2 + 2$$

Making Squares

Squares can be made using the shapes – but they may be incomplete or have some single squares left over.

Start with one x squared, six x by 1 rectangles and six single squares.

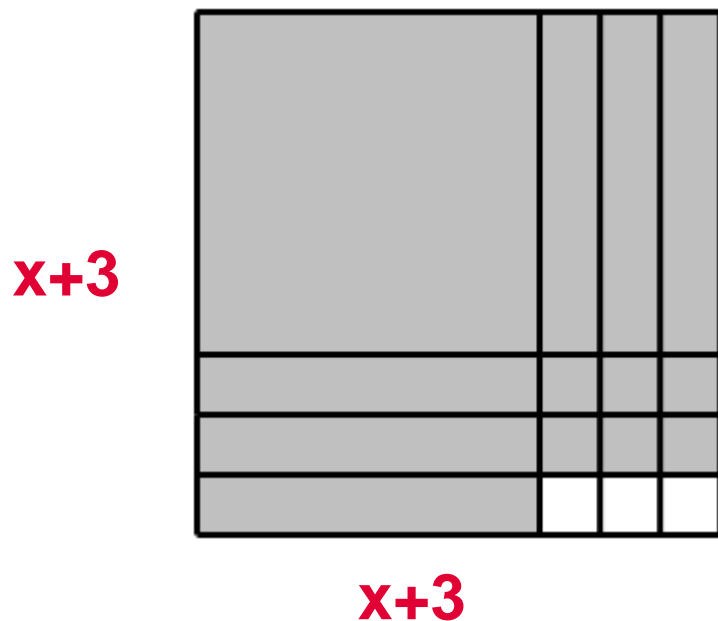


What area do you have?

$$\text{Area} = x^2 + 6x + 6$$

Making Squares

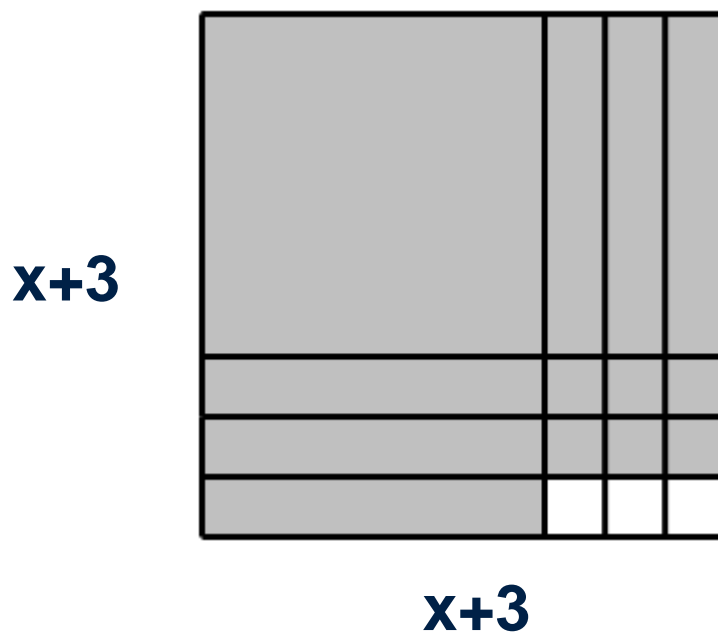
Make a square using all the pieces – fitting them edge to edge.
 You must use the large square and all of the rectangles



What size is the square? $(x+3)^2$

How many pieces do you have missing? **3**

Making Squares



$$\text{Area} = x^2 + 6x + 6 = (x+3)(x+3) - 3$$

$$x^2 + 6x + 6 = (x+3)^2 - 3$$

Making Squares

Use your shapes to make squares with extras or missing pieces using the following areas and record their side lengths (in terms of x and numbers) and extras or missing squares:

$$x^2+4x+1 = (x+2)^2-3$$

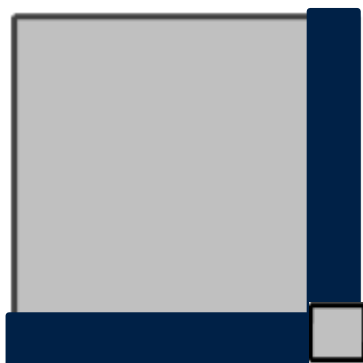
$$x^2+6x+11 = (x+3)^2+2$$

$$x^2+6x+2 = (x+3)^2-7$$

$$x^2+2x+8 = (x+1)^2+7$$

Making Squares

How could you use your tiles to make $(x-1)^2$?



$$(x-1)^2 = x^2 - 2x + 1$$

Can you make a square for $x^2 - 4x + 3$?

About the AMSP

- A government-funded initiative, managed by MEI, providing national support for teachers and students in all state-funded schools and colleges in England.
- It aims to increase participation in AS/A level Mathematics and Further Mathematics, and Core Maths, and improve the teaching of these qualifications.
- Additional support is given to those in priority areas to boost social mobility so that, whatever their gender, background or location, students can choose their best maths pathway post-16, and have access to high quality maths teaching.

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