

Welcome to Mathematics at Tottington High School

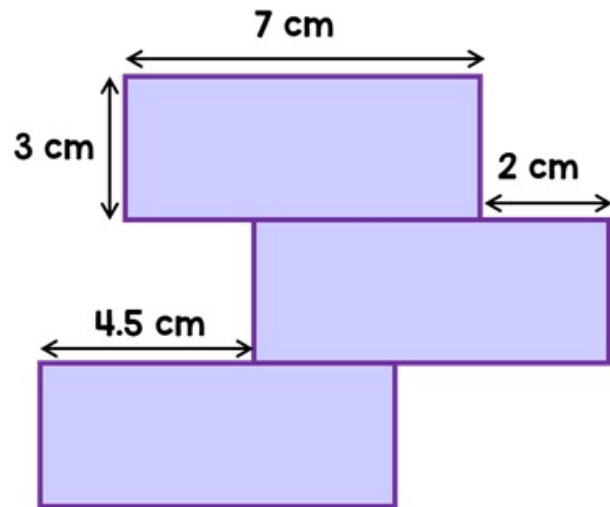
Maths is the universal language of the world. We are all mathematicians. To be more numerate is a skill that everyone can keep developing. This will help you experience the power of numbers .



The KS3 curriculum focuses on Fluency, Problem Solving and Reasoning

Problem Solving

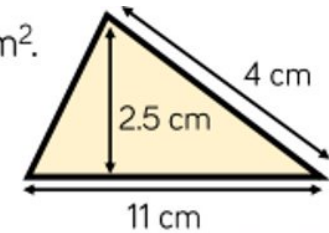
Three identical rectangles are arranged to make a shape.

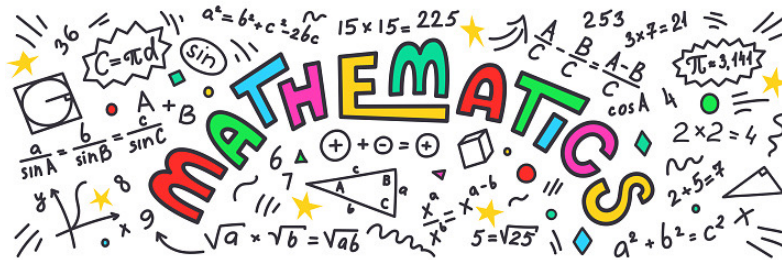


What is the perimeter of the shape?

Reasoning

Max says the area of this shape is 22 cm^2 .
Explain why Max is wrong.
How can he work out the area of the triangle?





- We want our pupils to be able to solve maths problems that become increasingly more complex .
- To be able to give reasons and explain how to arrive at a solution.
- We explain and use misconceptions to overcome hurdles to progression in maths.
- We ensure that every step is purposeful in helping our pupils understand the wide range of topics in the subject of mathematics whilst gaining the knowledge required to succeed.

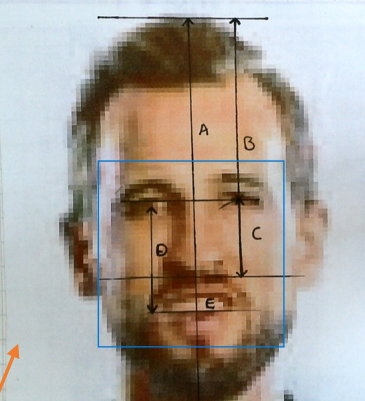


TBAT: Understand the golden ratio.

Do Now

- 1, 1, 2, 3, 5, 8. ✓
- $2n + 8 = 10$ ✓ $\frac{4}{4}$
- $2n^2 = 8 \rightarrow 1, 2, 8$ ✓
- $x^2 + 5x + 6$ ✓

A = 11.5cm
 B = 5.8cm
 C = 2.3cm
 d = 3cm
 e = 2cm
 F = 4cm
 g = 6.1cm
 h = 3.9cm
 i = 4.1cm
 j = 3cm
 k = 2cm
 l = 1cm



We support pupils understanding of maths by using real life context. This helps them to see the importance of Maths outside of the classroom.

HORSE RACE

- Who won the race(s)? 4 or 7
- Who did you expect to win? 6 or 7
- Do some horses have a higher chance of winning? Why? 6 and 7 had a higher chance because their are more ways to make them.
- How many ways can you score a 2? 1 ✓
- How many ways can you score a 12? 1 ✓
- How many ways can you score a 4? 3 ✓
- How many ways can you score a 10? 3 ✓
- How many ways can you score a 7? 6 ✓

We can make this easier by using a Sample Space Diagram.

		Score on the 2 nd Dice					
		1	2	3	4	5	6
Score on the 1 st Dice	1	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	10
	5	6	7	8	9	10	11
	6	7	8	9	10	11	12

Fill the table with the totals from 2 dice.

- How many ways to score a 6? 5 ✓
- How many ways to score a 5? 4 ✓
- How many outcomes are there in total? 36 ✓

Remember, $Probability = \frac{\text{number of ways outcome can happen}}{\text{total number of possible outcomes}}$

We use MAD (make a difference) time frequently in Maths where pupils improve their work using their red pens.

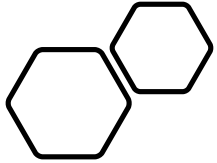
- Solve $4x^2 + 23x + 15 = 0$
 $4x^2 + 23x + 15 = 0$
 $(4x+10)(4x+3)$
 $(x+5)(4x+3)$
 $x = -5$ or $x = -3/4$ ✓
- Solve $2x^2 - 7x + 6 = 0$
 $2x^2 - 7x + 6 = 0$
 $(2x-4)(2x-3)$
 $(x-2)(2x-3)$
 $x = 2$ or $x = 3/2$ ✓
- Solve $4x^2 - 8x + 3 = 0$
 $4x^2 - 8x + 3 = 0$
 $(4x-6)(4x-2)$
 $(2x-3)(2x-1) = 0$
 $x = 3/2$ or $x = 1/2$ ✓
- Solve $15x^2 + 7x - 4 = 0$
 $15x^2 + 7x - 4 = 0$
 $(15x+12)(15x-5) = 0$
 $(5x+4)(3x-1) = 0$
 $x = 4/5$ or $x = 1/3$ ✓

Example:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

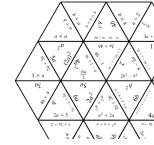
- $10x^2 - 3x - 10 = 0$
 $ax^2 + bx + c = 0$
 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4 \times 10 \times (-10)}}{2 \times 10}$
 $= \frac{3 \pm \sqrt{9 + 400}}{20}$
 $= \frac{3 \pm \sqrt{409}}{20}$
 $= \frac{3 + \sqrt{409}}{20}$ or $\frac{3 - \sqrt{409}}{20}$
 $x = 5$ or $x = -2$

We develop pupils' confidence in using different methods to solve maths problems.

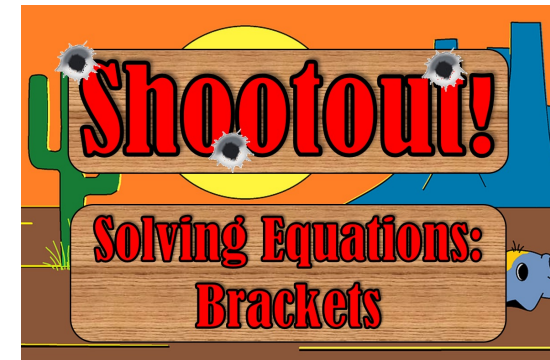


Tarsia Jigsaw

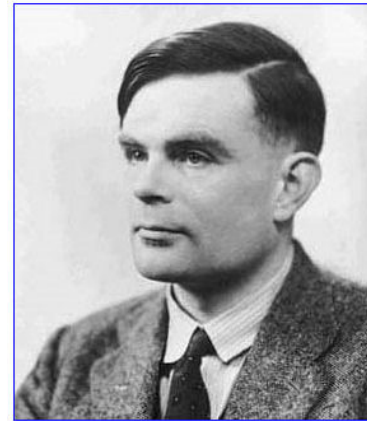
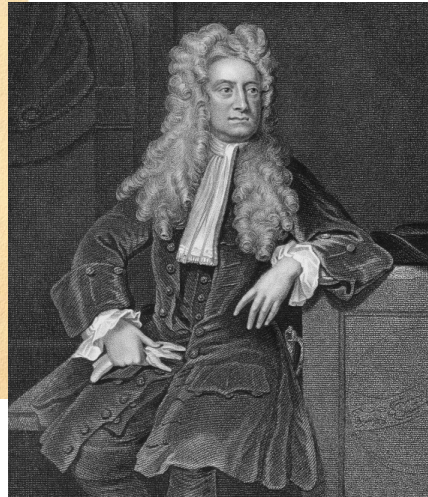
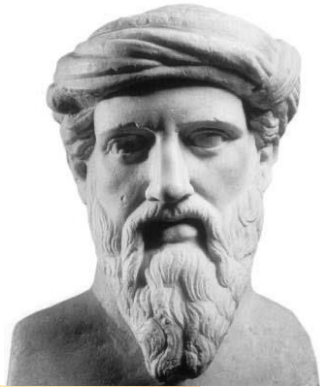
Can you finish the puzzle?



- We encourage independent learning and quizzes to assess pupils' knowledge of numbers, algebra, geometry, statistics and track your progress.
- We have computer suites to use, to help in the reinforcing and developing of the understanding of key concepts.
- Pupils will experience the power of maths in understanding how the world works through contextualised learning.



Challenge: Can you name the famous mathematicians?

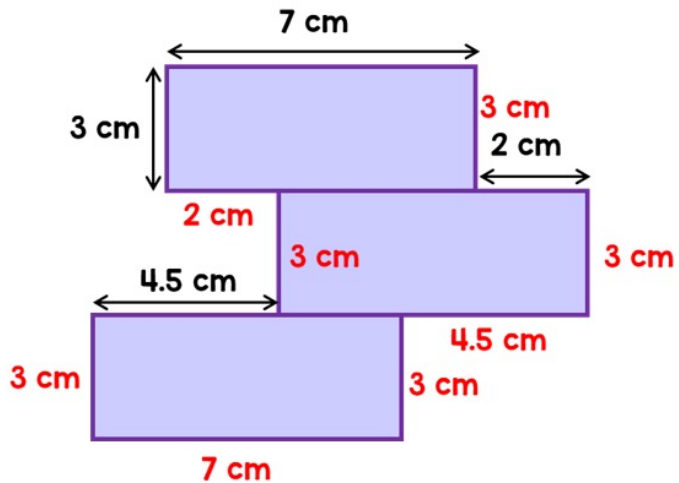


**Shaw
Education
Trust**
We believe, you achieve

The KS3 curriculum focuses on Fluency, Problem Solving and Reasoning

Problem Solving

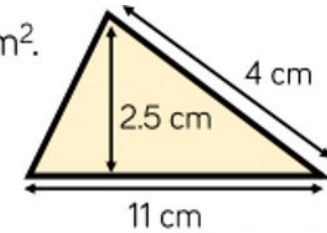
- 3 Three identical rectangles are arranged to make a shape.



What is the perimeter of the shape? **45 cm**

Reasoning

Max says the area of this shape is 22 cm^2 . Explain why Max is wrong. How can he work out the area of the triangle?



Max hasn't used the perpendicular height. He should have done $(11 \times 2.5) \div 2 = 13.75 \text{ cm}^2$





Laurel Street
Tottington
Bury. BL8 3HP

Twitter: @TottingtonHigh
Tel: 01204 882 327
Email: information@tottington.shaw-education.org.uk
Online: www.tottington.bury.sch.uk



We believe, you achieve