

**KS3 SUMMER TERM 3.2**

**MATHS BLENDED LEARNING**

**Probability and Statistics**

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| **Content** | **(Please tick if completed)** |
| **Week 2** - The Sum of Angles in a Triangle and The Angle Sum in Polygons |  |

**Automated PowerPoint Link:** [**https://corbettmaths.com/2012/08/10/angles-in-polygons/**](https://corbettmaths.com/2012/08/10/angles-in-polygons/)

**Instructions: Complete each week’s work. The task section is for everyone to try, the challenge task is the extension for that topic.**

**If you have any questions or would like some feedback, you can contact:**

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**Useful Video Links**

|  |  |
| --- | --- |
| **Week** | **Video Link** |
| 1 | <https://youtu.be/dqg1DQCJa-E> |
| 2 | <https://youtu.be/QEsjIeSnEHU>  <https://youtu.be/gVo8ZrtlSp0> |
| 3 | <https://youtu.be/mM-PU6hmkrg>  <https://youtu.be/ALcBC-p82Q0> |
| 4 | <https://youtu.be/iWLVTy_rGjs> |
| 5 | <https://youtu.be/zHlKSFV4QGE>  <https://youtu.be/6x1-_vA-0-s> |
| 6 | <https://youtu.be/MS6lnCTgTSw> |
| 7 | <https://youtu.be/1aGG8KY_GMA> |

**Week 2 - The Sum of Angles in a Triangle and The Angle Sum in Polygons Task**

**Starter**

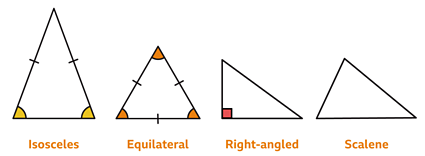
|  |  |
| --- | --- |
| Round 14.52 to one decimal place: | Simplify a x a |
| 15% of 120 = | 46 + 28.4 = |

**This week you will derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and derive properties of regular polygons.**

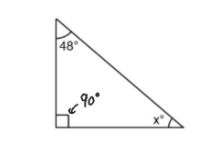
**Angles in Triangles**

All angles in a triangle add up to 180°

Look at the different types of angles in these triangles…



Recognising the type of triangle can help calculate missing angles.

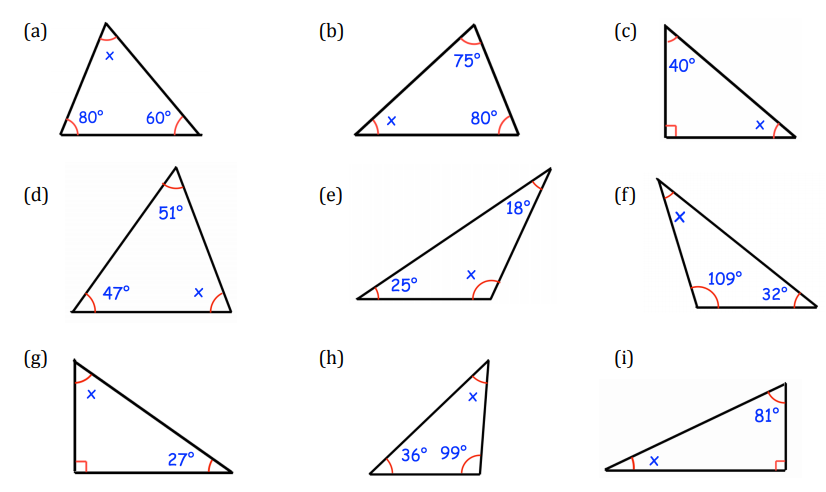
Example:

90 + 48 = 138

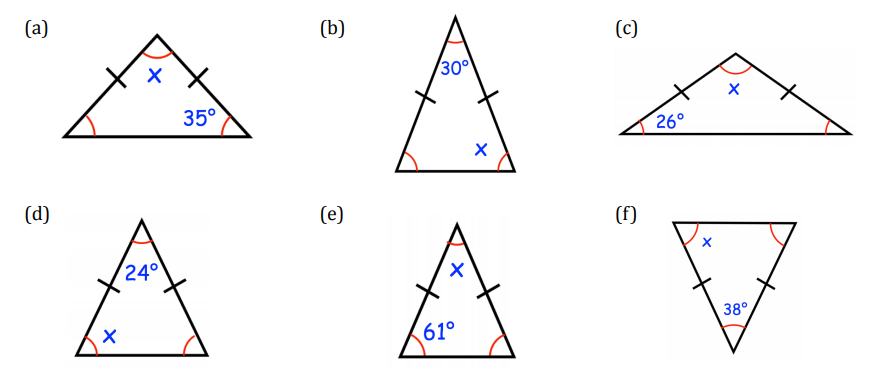
180 – 138 = 42

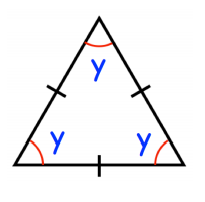
x° = 42°

Question 1) Find the size of each missing angle.



Question 2)



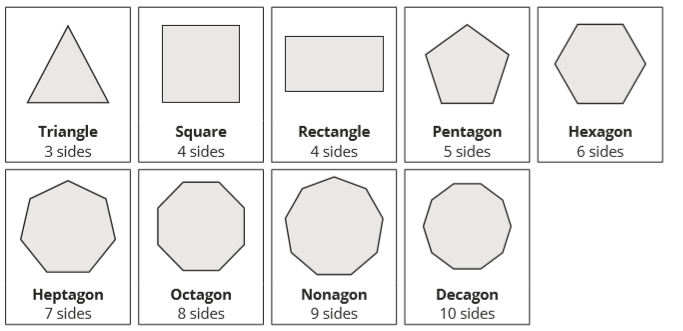


What is the value of y?

**Angles in Polygons**

A polygon is a 2D shape which has 3 or more straight sides.

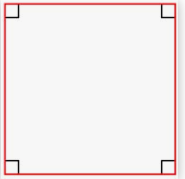
In a regular polygon, all the sides are the same length and all the angles are the same size.

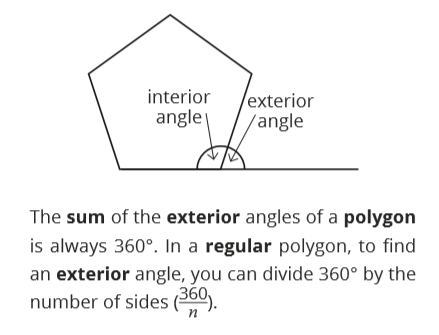


The formula for the sum of the interior angles in a polygon is:

(n – 2) x 180° (n is the number of sides)

We know a square has 4 right angles and 4 sides. Let us see if the formula works!

(4 – 2) x 180° = 360° 360° ÷ 4 = 90°



The sum of the exterior angles of a polygon is always 360°. In a regular polygon, to find an exterior angle, you can divide 360° by the number of sides.

360° ÷ n

|  |  |  |  |
| --- | --- | --- | --- |
| Shape | Sum of Interior Angles | Interior Angle | Exterior Angle |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Use the formulas above to work out the angles of these polygons.

**Challenge**

Question 1)

Jacob has measured the three angles in a triangle. Two of his measurements are 45°and 70° What is the third measurement?

Question 2)

The ratio of three angles in a triangle are 1:2:3. Work out the size of each angle.

Question 3)

An isosceles triangle has one angle of 52°. Write down the possible sizes of the other two angles in the triangle.

**Extension**

The diagram below has been created using lots of regular polygons. Find all the angles in the shaded shapes contained within the diagram.

