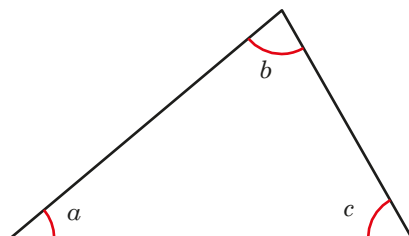
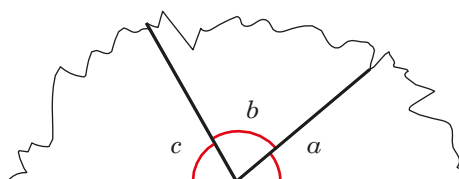


Angles in a triangle

1 Here is a triangle.



a) The three vertices are torn off the triangle and arranged on a straight line.



What is the sum of the three angles?

180°

How do you know?

Adjacent angles on a straight line sum to 180°

b) Now measure the sizes of angles a , b and c in the triangle.

$a = 40^\circ$ $b = 80^\circ$ $c = 60^\circ$

c) What is the total of angles a , b and c ?

180°

d) Complete the sentence.

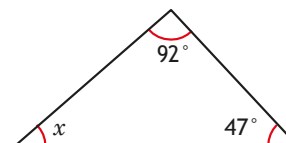
Angles in a triangle sum to 180°

2

Work out the sizes of the unknown angles.

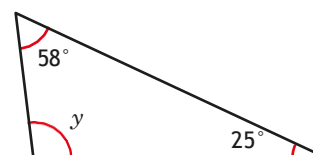
Give reasons for your answers.

a)



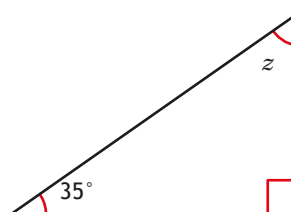
$x = 41^\circ$ because angles in a triangle sum to 180°

b)



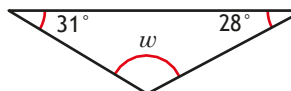
$y = 97^\circ$ because angles in a triangle sum to 180°

c)



$z = 55^\circ$ because angles in a triangle sum to 180°

d)

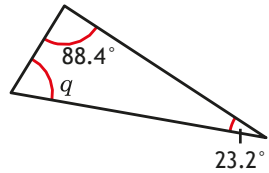


$w = 121^\circ$ because angles in a triangle sum to 180°

3

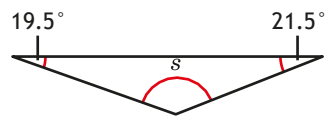
Work out the unknown angles.

a)



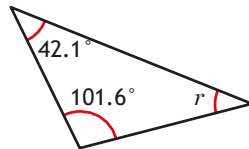
$$q = 68.4^\circ$$

c)



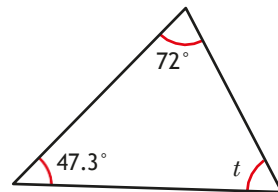
$$s = 139^\circ$$

b)



$$r = 36.3^\circ$$

d)



$$t = 60.7^\circ$$

Discuss your reasons with a partner.

4

a) Two angles in a triangle are 42° and 57° .

What is the size of the third angle?

$$81^\circ$$

b) Two of the angles in a triangle are 12° .

What is the size of the third angle?

$$156^\circ$$

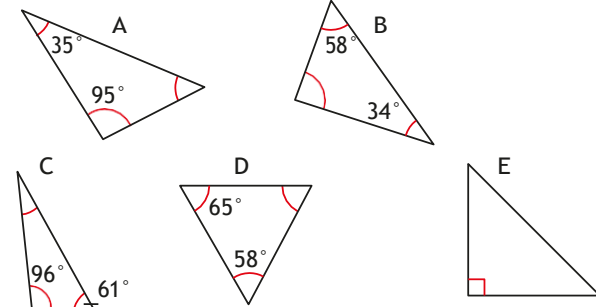
c) One of the angles in a triangle is 38° . Another angle is twice the size of the first angle.

What is the size of the third angle?

$$66^\circ$$

5

Sort the triangles into the table.

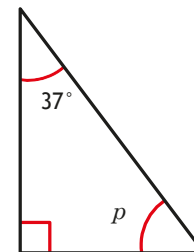


0 acute angles	1 acute angle	2 acute angles	3 acute angles
		A C E	B D

Are any of the columns empty? Why?

The sum of the angles in a triangle is 180° so there has to be at least 2 acute angles.

6



$p = 143^\circ$ because angles in a triangle sum to 180° and $180 - 37 = 143$

Do you agree with Ron? No

Explain your answer.

He hasn't included the right angle. $p = 53^\circ$