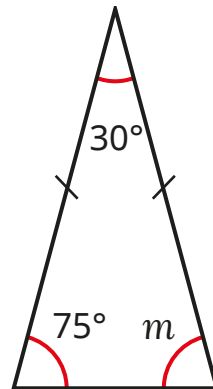


# Angles in a triangle – special cases

- 1 Here is an isosceles triangle.



- a) Work out the size of angle  $m$ .

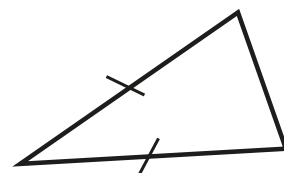
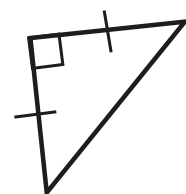
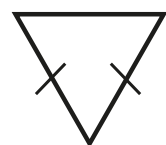
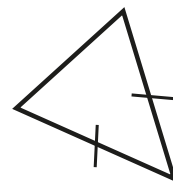
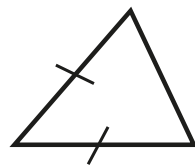
°

What do you notice?

- b) Complete the sentence to describe the angles in an isosceles triangle.

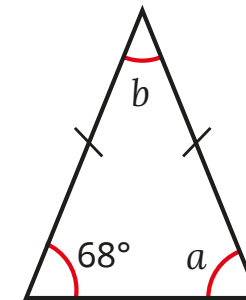
In an isosceles triangle, \_\_\_\_\_

- 2 Identify and label the angles that will be equal in each triangle.



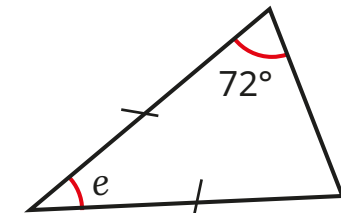
- 3 Work out the sizes of the angles marked with letters.

a)



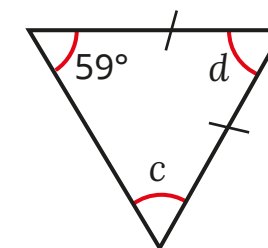
$$a = \boxed{\phantom{00}}^\circ \quad b = \boxed{\phantom{00}}^\circ$$

c)



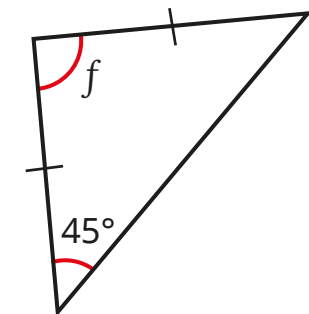
$$e = \boxed{\phantom{00}}^\circ$$

b)



$$c = \boxed{\phantom{00}}^\circ \quad d = \boxed{\phantom{00}}^\circ$$

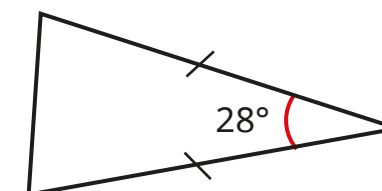
d)



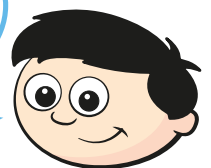
$$f = \boxed{\phantom{00}}^\circ$$

Talk about your reasons with a partner.

- 4 Dexter is working out the unknown angles in triangles.



I cannot work out either of the missing angles because I do not have enough information.



Do you agree with Dexter? \_\_\_\_\_

Explain your answer.

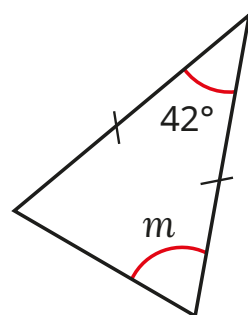
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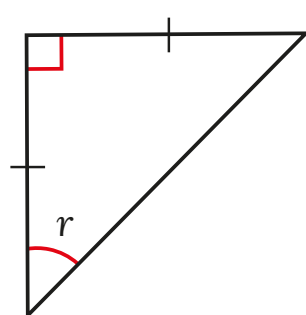
5 Work out the sizes of the angles marked with letters.

a)



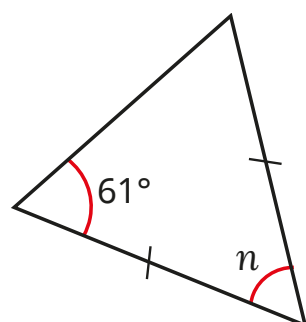
$$m = \boxed{\phantom{00}}^\circ$$

c)



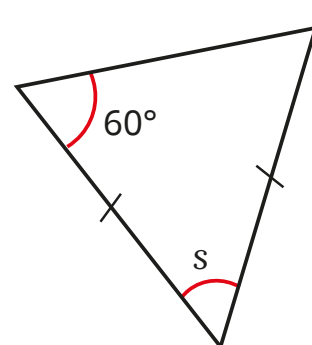
$$r = \boxed{\phantom{00}}^\circ$$

b)



$$n = \boxed{\phantom{00}}^\circ$$

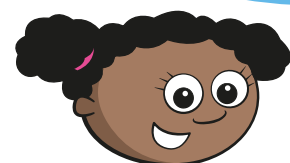
d)



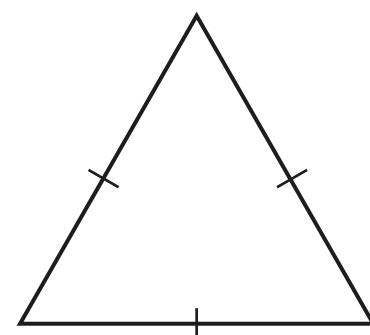
$$s = \boxed{\phantom{00}}^\circ$$

6 Whitney and Jack are working out the angles in this triangle.

I cannot work out the angles in this triangle because I do not know any of them.



Whitney



I know the size of all the angles in this triangle.



Jack

Who do you agree with?  
Talk about it with a partner.

7 Are the statements true or false?

- a) Every isosceles triangle is equilateral. \_\_\_\_\_
- b) Every equilateral triangle is isosceles. \_\_\_\_\_
- c) A right-angled triangle can be equilateral. \_\_\_\_\_
- d) A right-angled triangle can be isosceles. \_\_\_\_\_

Explain your answers to a partner.

8 Two angles in a triangle are  $43^\circ$  and  $74^\circ$ .

Is the triangle isosceles? \_\_\_\_\_

Show your workings.

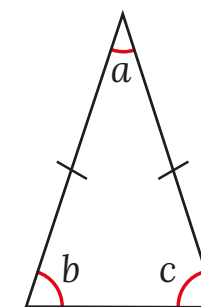
9 One angle in an isosceles triangle is  $29^\circ$ .

What could the other angles be? Give two possible answers.

\_\_\_\_\_

10 Angle  $b$  is twice the size of angle  $a$ .

Work out the size of angle  $c$ .



$$\boxed{\phantom{00}}^\circ$$

