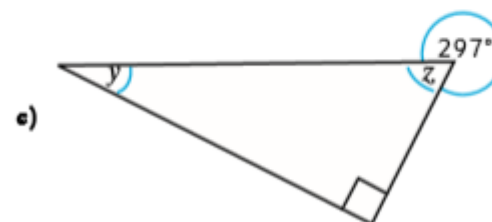
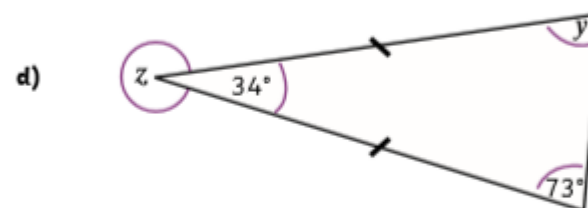
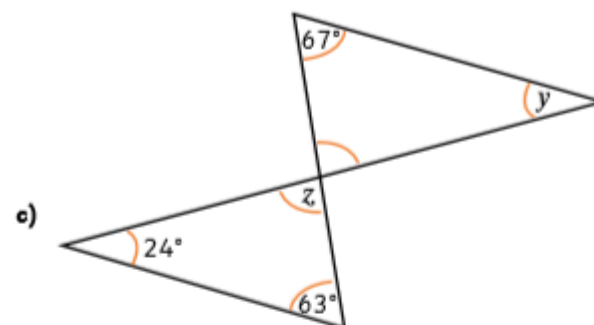
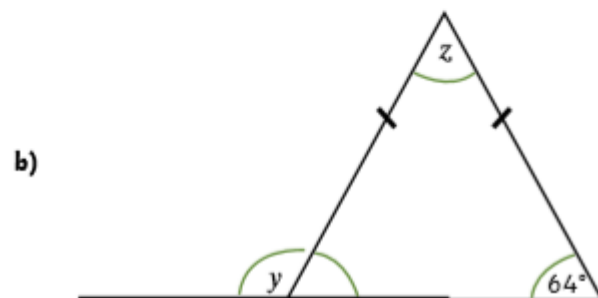
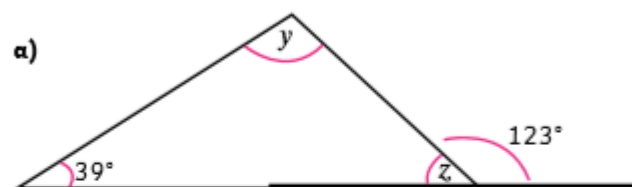


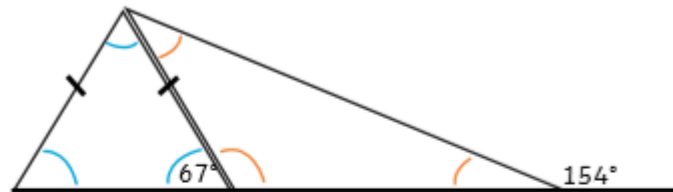


- 1) For each question, calculate the value of the angles y and z . Think carefully about what you know about angles around a point, on a straight line and in different types of triangles.



Important note: triangles are not drawn to scale, do not use a protractor.

- 1) a) Circle the angle statements that you can use to help you calculate the missing angles in this shape.



Angles around a point = 360° .

Vertically opposite angles are equal.

Angles in a triangle = 180° .

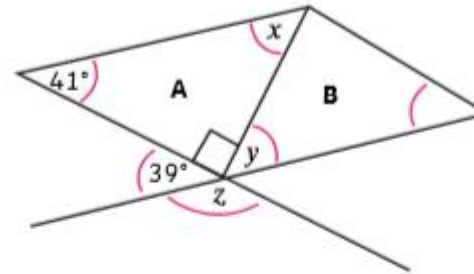
A right angle = 90° .

Angles on a straight line = 180° .

Isosceles triangles have 2 equal angles.

- b) Label the shape above with all of the missing angles.

- 2) True or false? Explain how you know.

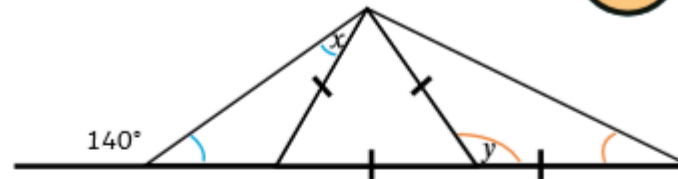


- a) Angle y will measure 39° as it is vertically opposite the angle measuring 39° .
- b) To find angle x , subtract 41° and the value of a right angle from 180° .
- c) As angle z is one of 5 angles around a point, you can calculate angle z by dividing 360° by 5.
- d) Find the missing angles x , y and z .

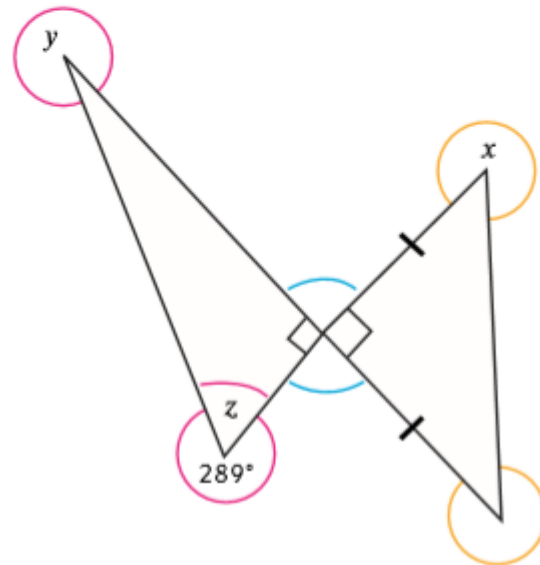
Important note: triangles are not drawn to scale, do not use a protractor.



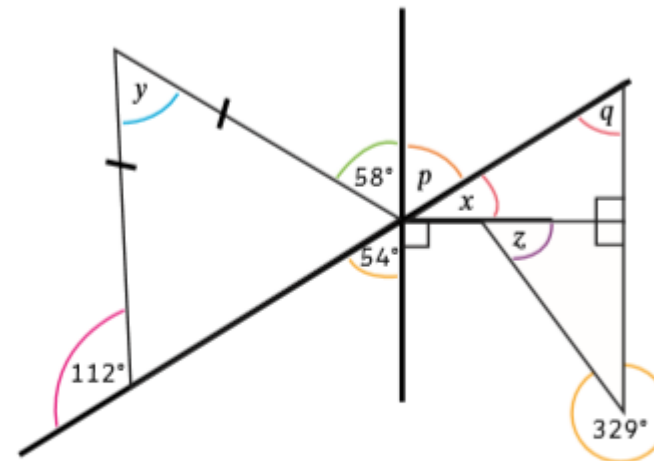
- 1) Calculate the value of angles x , y and z .



- 2) Calculate all the angles indicated by a letter, giving reasons for all your answers.



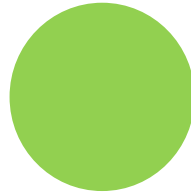
- 3) Calculate all the angles indicated by a letter.



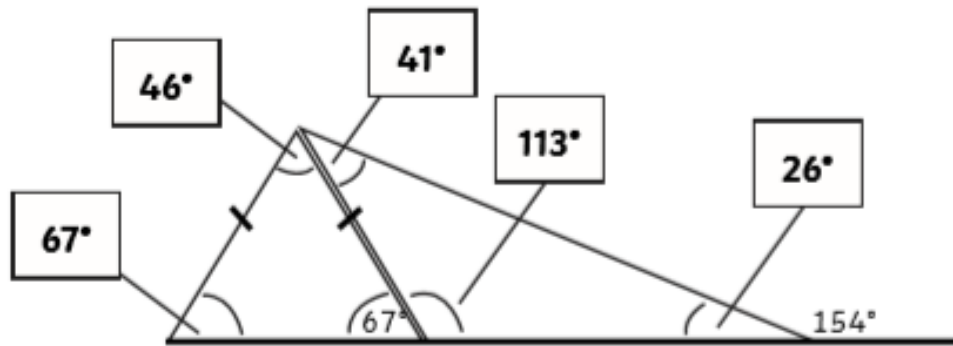
Important note: triangles are not drawn to scale, do not use a protractor.

ANSWERS

- 1) a) $\text{angle } y = 84^\circ$
 $\text{angle } z = 57^\circ$
- b) $\text{angle } y = 116^\circ$
 $\text{angle } z = 52^\circ$
- c) $\text{angle } y = 20^\circ$
 $\text{angle } z = 93^\circ$
- d) $\text{angle } y = 73^\circ$
 $\text{angle } z = 326^\circ$
- e) $\text{angle } y = 27^\circ$
 $\text{angle } z = 63^\circ$



1)



Angles around a point = 360° .

Vertically opposite angles are equal.

Angles on a straight line = 180° .

Angles in a triangle = 180° .

A right angle = 90° .

Isosceles triangles have 2 equal angles.

- 2) a) This is false. Angle y is not vertically opposite the angle measuring 39° .
- b) This is true. Angle x is 49° , which can be found by subtracting 41° and 90° from 180° as angles in a triangle add to 180° .
- c) This is false. Although angle z is one of 5 angles around a point, they are not all equal angles.
- 3) angle $x = 49^\circ$
angle $y = 51^\circ$
angle $z = 141^\circ$

1) $\text{angle } x = 20^\circ$

$\text{angle } y = 120^\circ$

$\text{angle } z = 30^\circ$

2) $\text{Angle } x = 315^\circ$ as two angles in an isosceles triangle are the same and angles around a point add to 360° .

$\text{Angle } y = 341^\circ$ as angles in a triangle add to 180° and angles around a point add to 360° .

$\text{Angle } z = 71^\circ$ as angles around a point add to 360° .

3) $\text{angle } p = 54^\circ$

$\text{angle } q = 54^\circ$

$\text{angle } x = 36^\circ$

$\text{angle } y = 44^\circ$

$\text{angle } z = 59^\circ$

