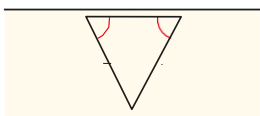
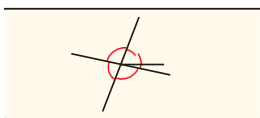
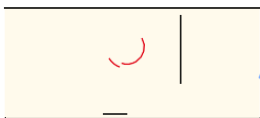
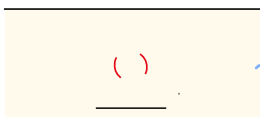
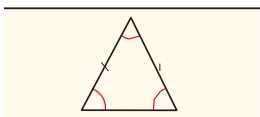


Angles in a triangle – missing angles

1 Match each diagram to the correct rule.



Angles on a straight line sum to 180°

Angles around a point sum to 360°

Angles in a triangle sum to 180°

In an isosceles triangle, two angles are equal

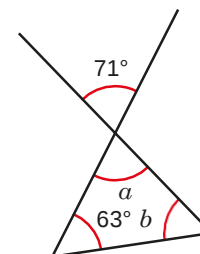
Vertically opposite angles are equal

2

Work out the sizes of the unknown angles.

Give reasons for each stage of your working.

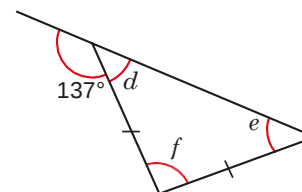
a)



$a = 71^\circ$ because vertically opposite angles are equal

$b = 46^\circ$ because angles in a triangle sum to 180°

b)

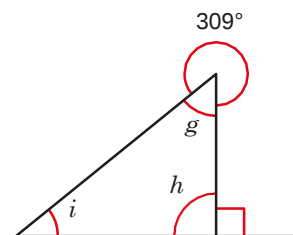


$d = 43^\circ$ because angles on a straight line sum to 180°

$e = 43^\circ$ because in an isosceles triangle two angles are equal

$f = 94^\circ$ because angles in a triangle sum to 180°

c)



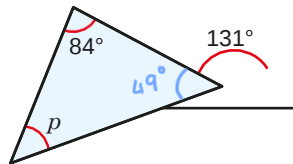
$g = 51^\circ$ because angles around a point sum to 360°

$h = 90^\circ$ because angles on a straight line sum to 180°

$i = 39^\circ$ because angles in a triangle sum to 180°

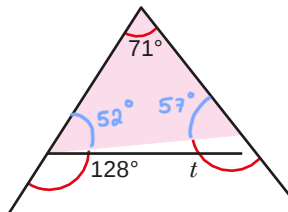
3 Work out the sizes of the angles marked with letters.

a)



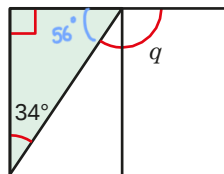
$$p = 47^\circ$$

e)



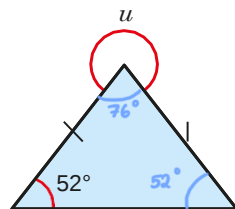
$$t = 123^\circ$$

b)



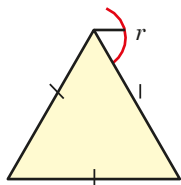
$$q = 124^\circ$$

f)



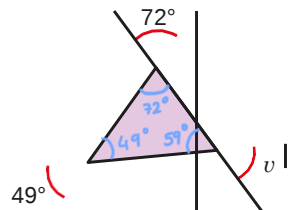
$$u = 284^\circ$$

c)



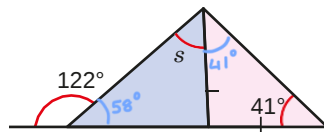
$$r = 120^\circ$$

g)



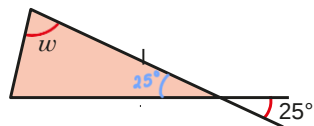
$$v = 59^\circ$$

d)



$$s = 40^\circ$$

h)



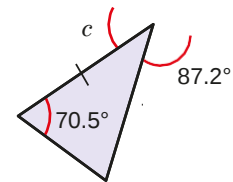
$$w = 77.5^\circ$$

Talk about your reasons with a partner.

4

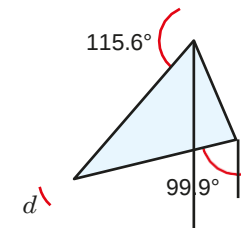
Work out the sizes of the unknown angles.

a)



$$c = 53.8^\circ$$

b)



$$d = 35.5^\circ$$

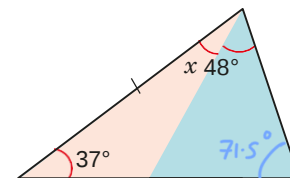
5

Work out the size of angle x .

$$180 - 37 = 143$$

$$143 \div 2 = 71.5$$

$$71.5 - 48 = 23.5$$



$$x = 23.5^\circ$$

6

Here is an isosceles triangle.

Find two possible sizes of angle y .



$$61 + 61 = 122$$

$$180 - 122 = 58$$

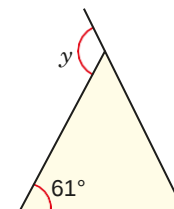
$$y = 180 - 58 = 122$$



$$180 - 61 = 119$$

$$119 \div 2 = 59.5$$

$$y = 180 - 59.5 = 120.5$$



$$y = 122^\circ \text{ or } 120.5^\circ$$