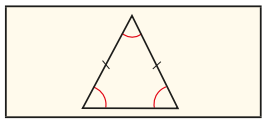
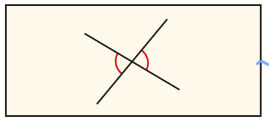
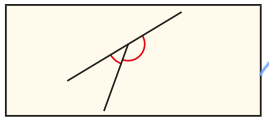
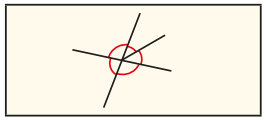
Angles in a triangle – missing angles

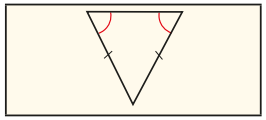
1 Match each diagram to the correct rule.









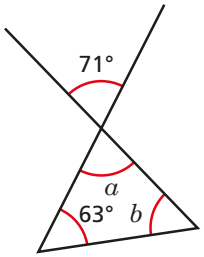


- Angles on a straight line sum to 180°
- Angles around a point sum to 360°
- Angles in a triangle sum to 180°
- In an isosceles triangle, two angles are equal
- Vertically opposite angles are equal

2 Work out the sizes of the unknown angles.

Give reasons for each stage of your working.

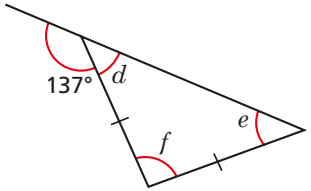
a)



a = 71° because vertically opposite angles are equal.

b = 46° because angles in a triangle sum to 180°

b)

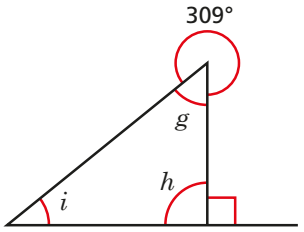


d = 43° because angles on a straight line sum to 180°

e = 43° because in an isosceles triangle two angles are equal.

f = 94° because angles in a triangle sum to 180°

c)



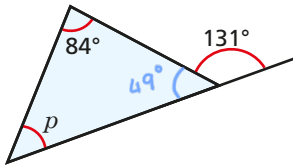
g = 51° because angles around a point sum to 360°

h = 90° because angles on a straight line sum to 180°

i = 39° because angles in a triangle sum to 180°

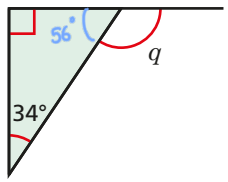
3 Work out the sizes of the angles marked with letters.

a)



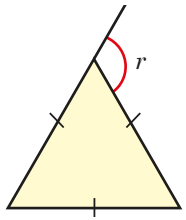
p = 47°

b)



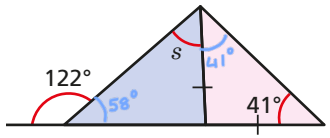
q = 124°

c)



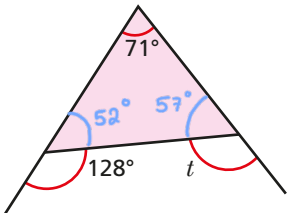
r = 120°

d)



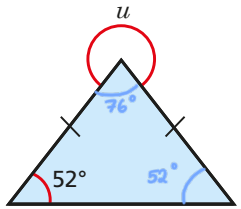
s = 40°

e)



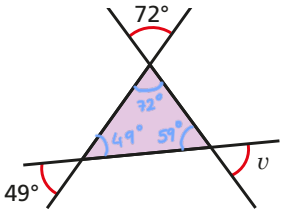
t = 123°

f)



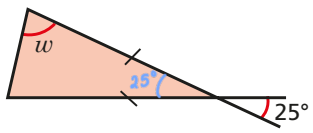
u = 284°

g)



v = 59°

h)

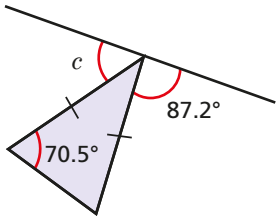


w = 77.5°

Talk about your reasons with a partner.

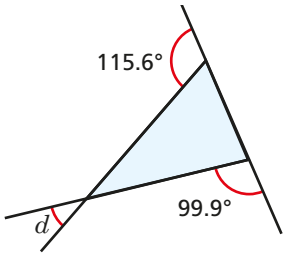
4 Work out the sizes of the unknown angles.

a)



c = 53.8°

b)



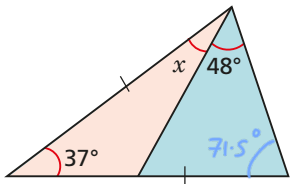
d = 35.5°

5 Work out the size of angle x.

180 − 37 = 143

143 ÷ 2 = 71.5

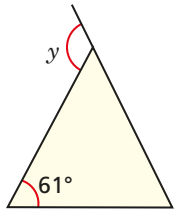
71.5 − 48 = 23.5



x = 23.5°

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 ÷ 2 = 59.5

y = 180 − 59.5 = 120.5

y = 122° or 120.5°