Work out the sizes of the unknown angles. Give reasons for your answers.

**2**

**Angles in a triangle**

## a)

92°

*x*

47°

*x* = because

**1** Here is a triangle.

# *b*

## b)



58°

*y*

25°

*y* = because

# *a c*

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

## c)

*z*

35°

*b z* = because

# *c a*

What is the sum of the three angles? How do you know?

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

*a* = *b* = *c* =

**d)**

*w* = because

31°

*w*

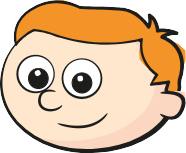
28°

1. What is the total of angles *a*, *b* and *c*?
2. Complete the sentence.



Angles in a triangle

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**5**

Sort the triangles into the table.

35°

A

58°

B

95°

34°

C

D

65°

E

96°

58°

61°

Are any of the columns empty? Why?

**6**

37°

*p* = 143° because angles in a triangle sum to 180° and 180 – 37 = 143

*p*

Do you agree with Ron?

Explain your answer.

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Work out the unknown angles.

**3**

## c)

88.4°

*q*

19.5° 21.5°

*s*

23.2°

*q* = *s* =

## d)



72°

47.3°

*t*

42.1°

101.6°

*r*

|  |  |  |  |
| --- | --- | --- | --- |
| 0 acute angles | 1 acute angle | 2 acute angles | 3 acute angles |
|  |  |  |  |

*r* = *t* =

Discuss your reasons with a partner.

1. Two angles in a triangle are 42° and 57°. What is the size of the third angle?

**4**

1. Two of the angles in a triangle are 12°. What is the size of the third angle?
2. 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?