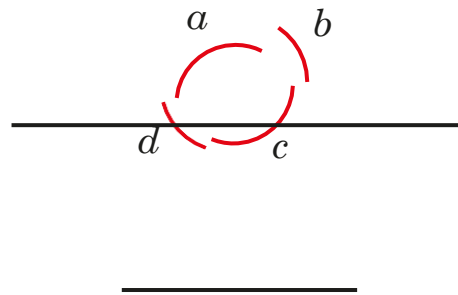


Vertically opposite angles

1 The diagram shows four angles formed by two straight lines.



a) Measure the sizes of the angles.

$a =$ $b =$ $c =$ $d =$

b) What is the total of angles a and b ?

Explain why.

Do any other pairs of angles have this same total?

c) Angles a and c are vertically opposite angles.

What do you notice about the sizes of angles a and c ?

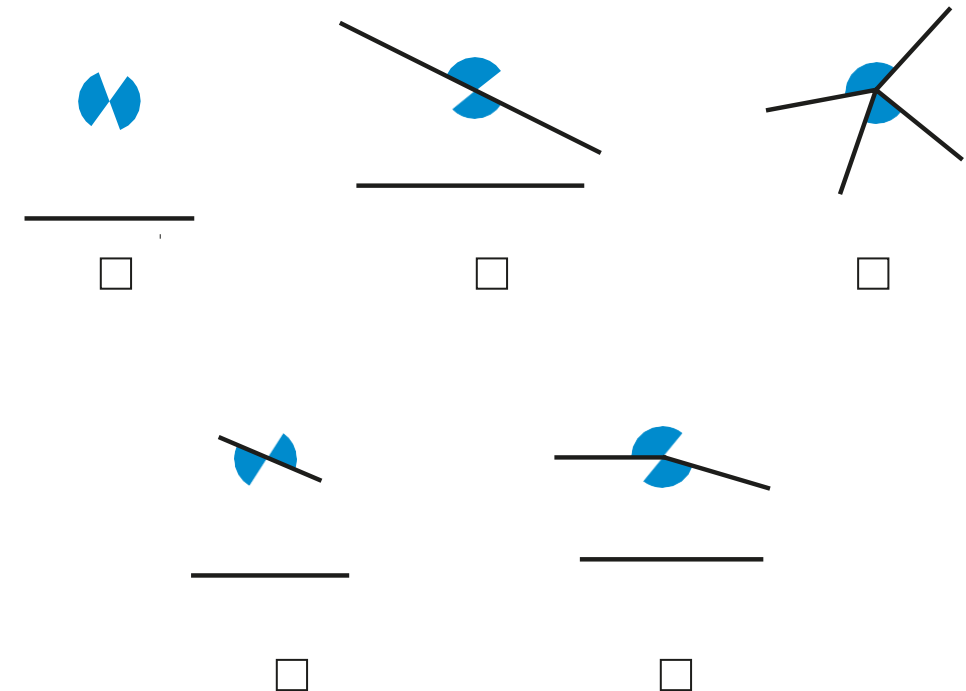
d) Angles b and d are also vertically opposite angles.

What do you notice about the sizes of angles b and d ?

e) Complete the sentence.

Vertically opposite angles _____

2 Tick the pairs of angles that are vertically opposite.



Compare answers with a partner.

3 Work out the sizes of the unknown angles.

Give reasons for your answers.

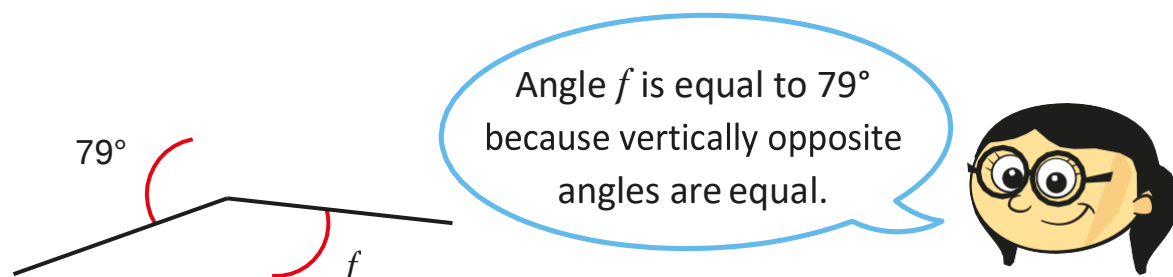
a)

y () 29° | $y =$ because _____

b)

132° () 48° | $z =$ because _____

4 Annie is working out the size of angle f .

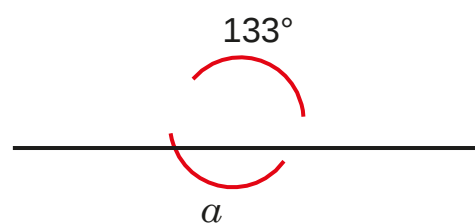


Do you agree with Annie? _____

Explain your answer.

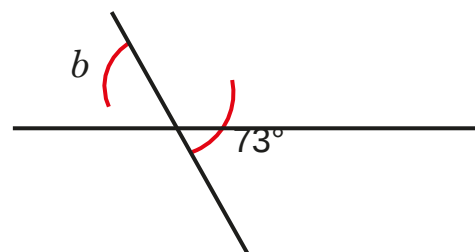
5 Work out the unknown angles.

a)



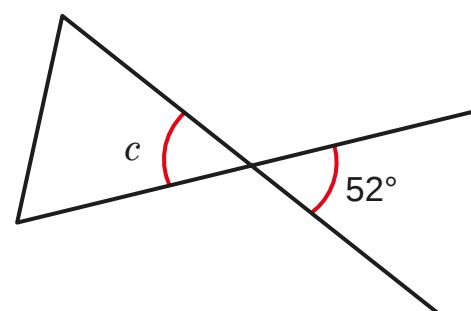
$$a = \boxed{}$$

b)



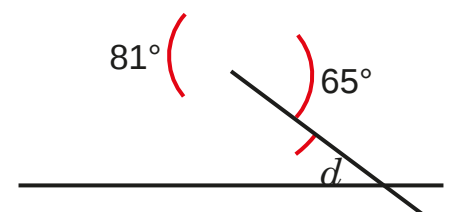
$$b = \boxed{}$$

c)



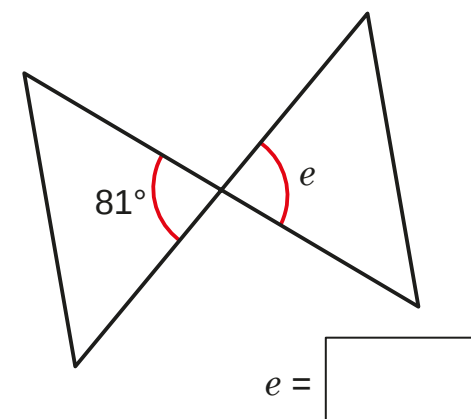
$$c = \boxed{}$$

d)



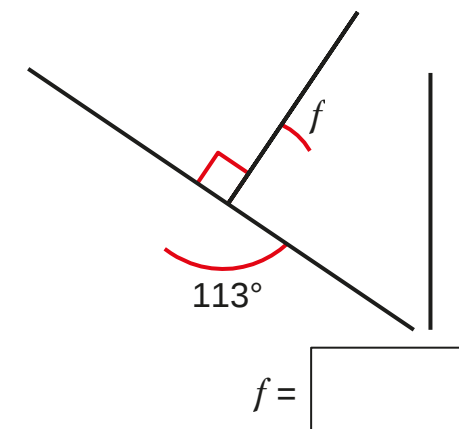
$$d = \boxed{}$$

e)



$$e = \boxed{}$$

f)

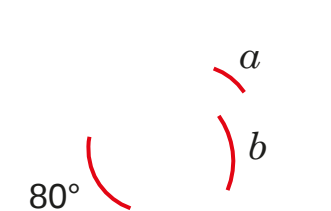


$$f = \boxed{}$$

Talk about your reasons with a partner.

6

Angle b is three times the size of angle a .



Work out the sizes of angles a and b .

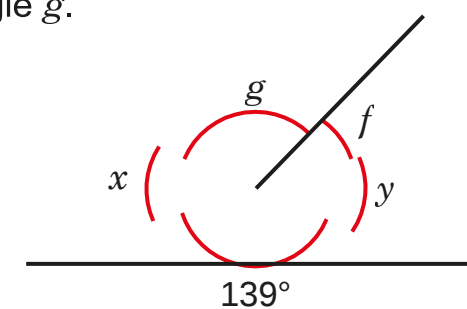
$$a = \boxed{}$$

$$b = \boxed{}$$

7

Angle f is one quarter of the size of angle g .

Angle f is 28° .



Are angles x and y vertically opposite? _____

Explain your answer.
