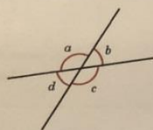


Vertically opposite angles

White Rose Maths

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



- a) Measure the sizes of the angles.

$a = 130^\circ$ $b = 50^\circ$ $c = 130^\circ$ $d = 50^\circ$

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

Explain why.
because $130 + 50 = 180$

Do any other pairs of angles have this same total? $c + d$

- c) Angles a and c are vertically opposite angles.

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

they're the same

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

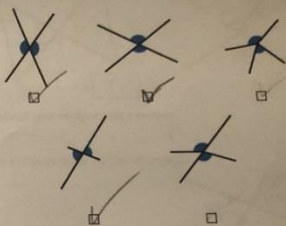
What do you notice about the sizes of angles b and d ?

they're the same

- e) Complete the sentence.

Vertically opposite angles they're the same

- 2 Tick the pairs of angles that are vertically opposite.



Compare answers with a partner.

- 3 Work out the sizes of the unknown angles.

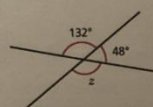
Give reasons for your answers.

- a)



$y = 29^\circ$ because they're vertically opposite angles.

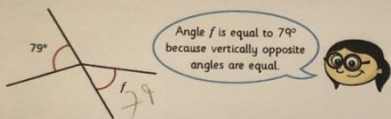
- b)



$z = 132^\circ$ because they're vertically opposite angles.

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- 4 Annie is working out the size of angle f .



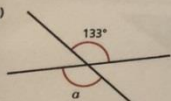
Do you agree with Annie? yes

Explain your answer.

they're opposite and the same

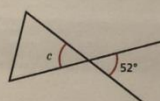
- 5 Work out the unknown angles.

- a)



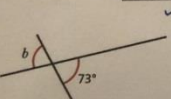
$a = 133^\circ$

- c)



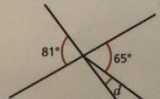
$c = 52^\circ$

- b)



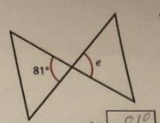
$b = 73^\circ$

- d)



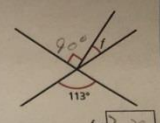
$d = 16^\circ$

- e)



$e = 81^\circ$

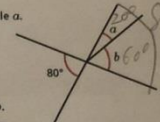
- f)



$f = 20^\circ$

Talk about your reasons with a partner.

- 6 Angle b is three times the size of angle a .



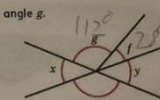
$a = 20^\circ$

$b = 60^\circ$

Work out the sizes of angles a and b .

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

Angle f is 28° .



Are angles x and y vertically opposite? yes

Explain your answer.

they're the same

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