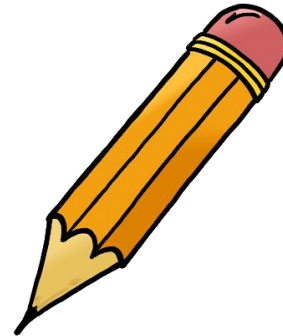


Year 6

Monday 13th July 2020

Maths

LO: Vertically Opposite Angles



**The video of this lesson is available here – Summer
Term – Week 11 - lesson 1**

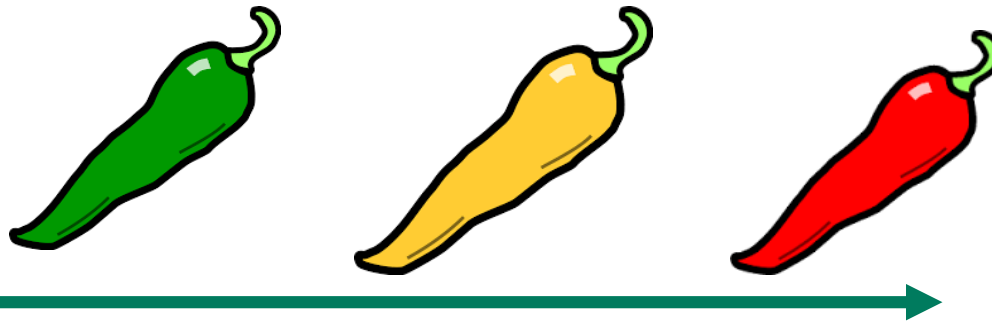
**This link works on the printable version and is
available above the PowerPoint.**

**You will need to watch this video to learn the
skills you need in this lesson.**



The independent work continues on the next two slides. There are 6 questions and 1 extension.

(Español - seis preguntas y una extensión)

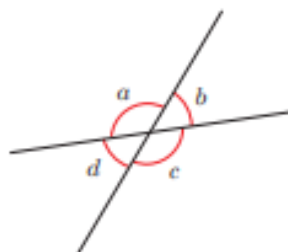


The chili suggests a good starting point.

If you have time you can complete all the independent work!

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 ?

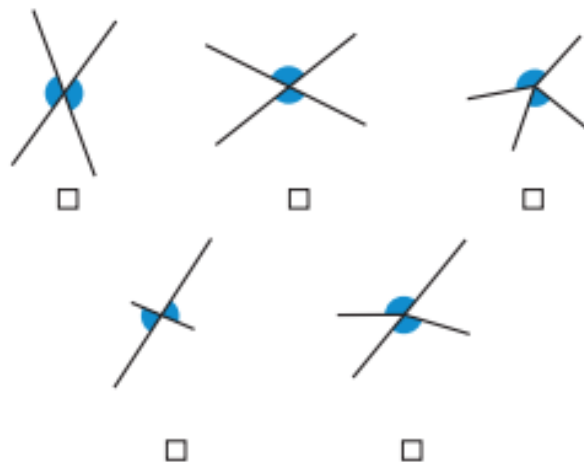
- d) Angles b and d are also vertically opposite angles.

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) $y =$ because _____

b) $z =$ because _____

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



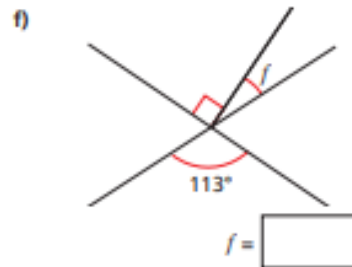
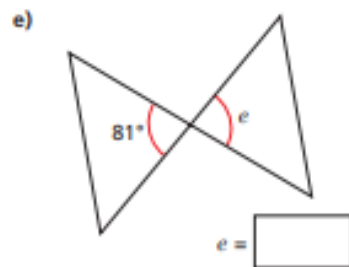
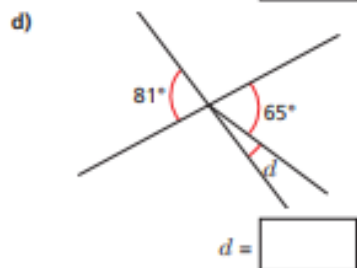
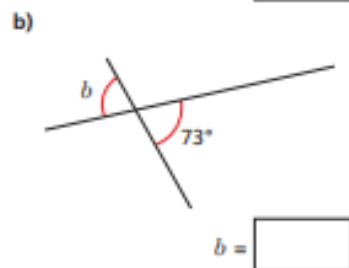
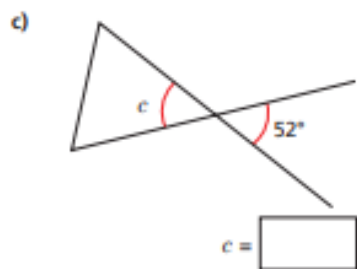
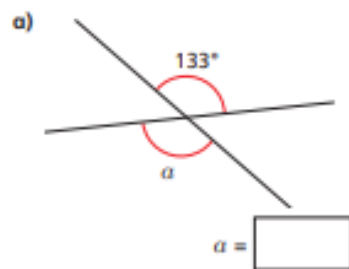
Angle f is equal to 79° because vertically opposite angles are equal.



Do you agree with Annie? _____

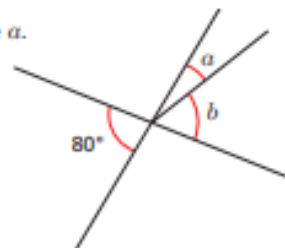
Explain your answer.

- 5 Work out the unknown angles.



Talk about your reasons with a partner.

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

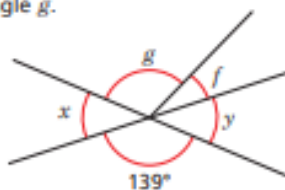


Work out the sizes of angles a and b .

$a = \square$ $b = \square$

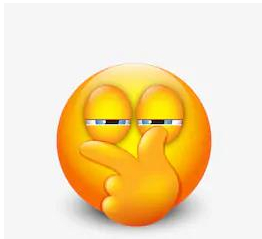
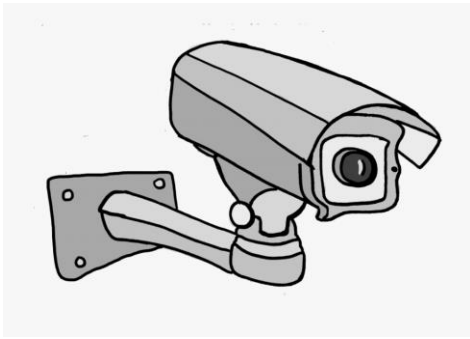
Ext: Angle f is one quarter of the size of angle g .

Angle f is 28° .

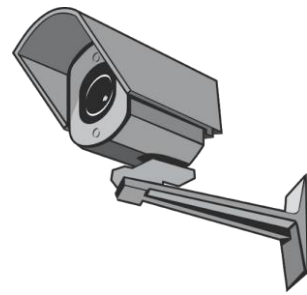
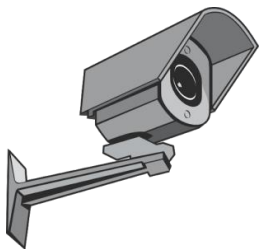


Are angles x and y vertically opposite? _____

Explain your answer.

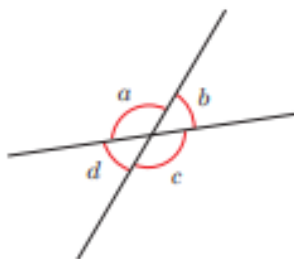


The next two slides contain the answers should you wish to check you work and reflect on what you understand.



Vertically opposite angles

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



- a) Measure the sizes of the angles.

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

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

$$180^\circ$$

Explain why.

Adjacent angles on a straight line sum to 180°

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 ?

They are equal.

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

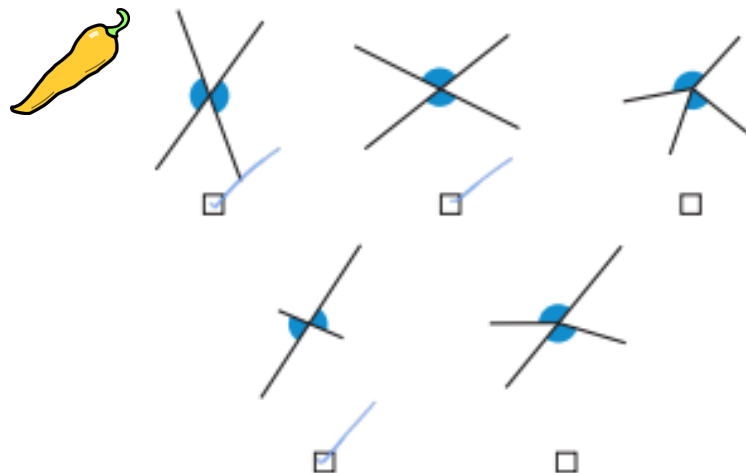
What do you notice about the sizes of angles b and d ?

They are equal.

- e) Complete the sentence.

Vertically opposite angles are equal.

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



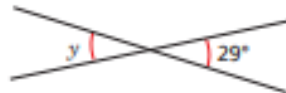
Compare answers with a partner.

- 3 Work out the sizes of the unknown angles.

Give reasons for your answers.

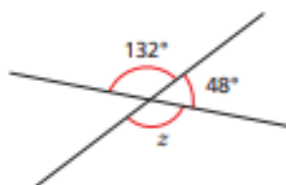


- a)



$y = 29^\circ$ because vertically opposite angles are equal.

- b)



$z = 132^\circ$ because vertically opposite angles are equal.

4 Annie is working out the size of angle f .



Angle f is equal to 79° because vertically opposite angles are equal.

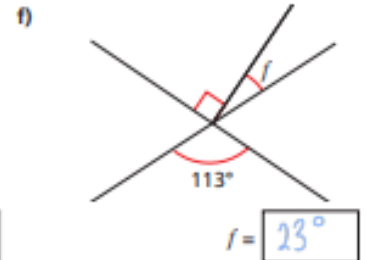
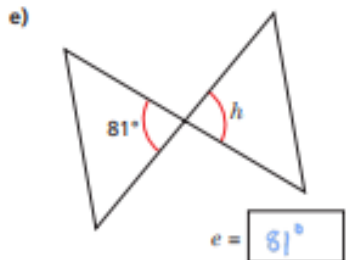
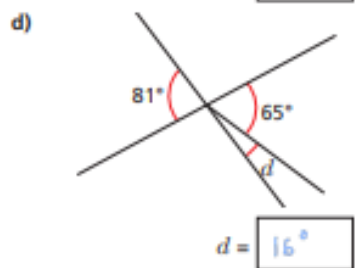
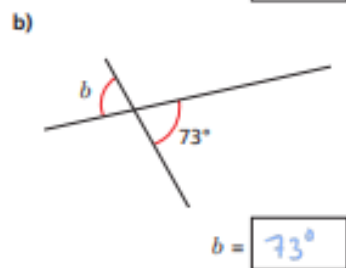
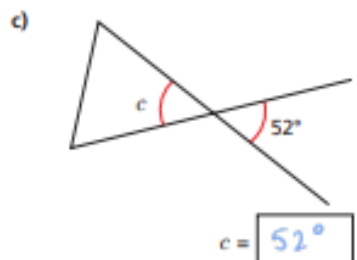
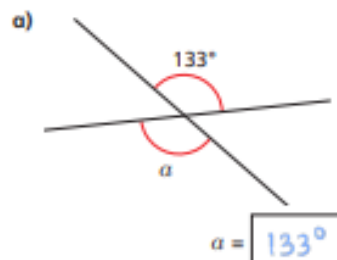


Do you agree with Annie? No

Explain your answer.

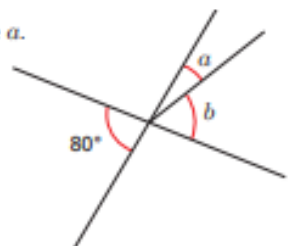
The diagram doesn't show two straight lines crossing so the angles are not vertically opposite.

5 Work out the unknown angles.



Talk about your reasons with a partner.

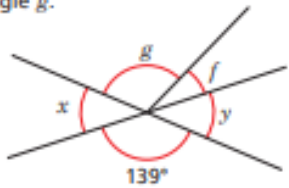
6 Angle b is three times the size of angle a .



Work out the sizes of angles a and b .

$a = \boxed{20^\circ}$ $b = \boxed{60^\circ}$

Ext: Angle f is one quarter of the size of angle g .
Angle f is 28° .



Are angles x and y vertically opposite? No

Explain your answer.

$28 \times 4 = 112$ so $g = 112^\circ$
 $112 + 28 = 140$

$139 \neq 140$ therefore the diagram does not show vertically opposite angles.

