

# Homework/Extension

## Step 4: Vertically Opposite Angles

### National Curriculum Objectives:

Mathematics Year 6: (6G4b) [Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles](#)

### Differentiation:

Questions 1, 4 and 7 (Varied Fluency)

**Developing** Calculating angles using understanding that vertically opposite angles are equal. Includes 4 angles measured to the nearest 10 degrees.

**Expected** Calculating angles using understanding that vertically opposite angles are equal. Includes 4 angles measured to the nearest whole degree; up to 2 angles given per question.

**Greater Depth** Calculating angles using understanding that vertically opposite angles are equal. Includes up to 6 angles measured to the nearest whole degree; up to 2 angles given per question.

Questions 2, 5 and 8 (Varied Fluency)

**Developing** Decide whether a statement is true or false when calculating angles. Includes 4 angles measured to the nearest 10 degrees.

**Expected** Decide whether a statement is true or false when calculating angles. Includes 4 angles measured to the nearest whole degree; up to 2 angles given per question.

**Greater Depth** Decide whether a statement is true or false when calculating angles. Includes up to 6 angles measured to the nearest whole degree; up to 2 angles given per question.

Questions 3, 6 and 9 (Reasoning and Problem Solving)

**Developing** Decide which statement is correct and explain why when calculating angles. Includes 4 angles measured to the nearest 10 degrees.

**Expected** Decide which statement is correct and explain why when calculating angles. Includes 4 angles measured to the nearest whole degree; up to 2 angles given per question.

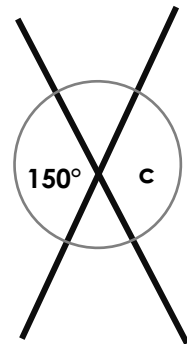
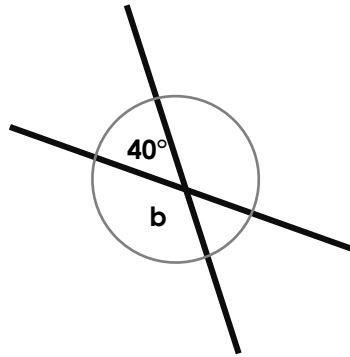
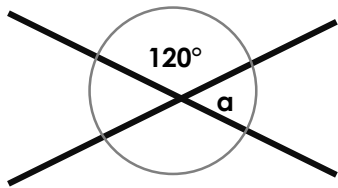
**Greater Depth** Decide which statement is correct and explain why when calculating angles. Includes up to 6 angles measured to the nearest whole degree; up to 2 angles given per question.

More [Year 6 Properties of Shapes](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

# Vertically Opposite Angles

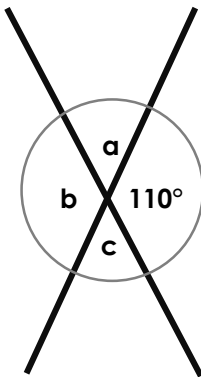
1. Find the value of the missing angles.



*Not to scale*

VF  
HW/Ext

2. Tick the boxes to show whether the statements are true or false.



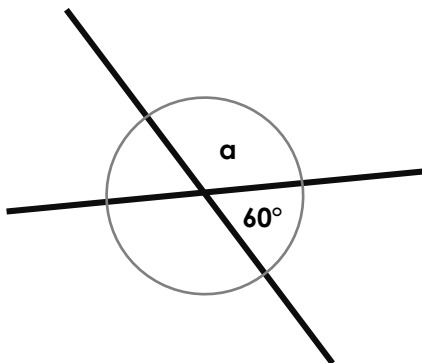
	T	F
A. Angle a is $70^\circ$	<input type="checkbox"/>	<input type="checkbox"/>
B. Angles a and b equal $220^\circ$	<input type="checkbox"/>	<input type="checkbox"/>
C. Angles c and b equal $180^\circ$	<input type="checkbox"/>	<input type="checkbox"/>



*Not to scale*

VF  
HW/Ext

3. Hafsa and Chuan are calculating missing angles.



Hafsa

You need to subtract  $60^\circ$  from  $180^\circ$  to find the missing angle.



Chuan

You need to subtract  $60^\circ$  from  $360^\circ$  and then divide by 2 to find the missing angle.

Who is correct?

Explain how you know.

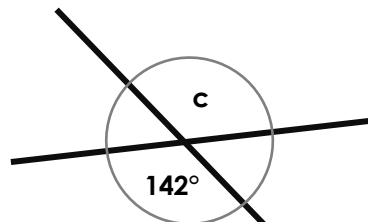
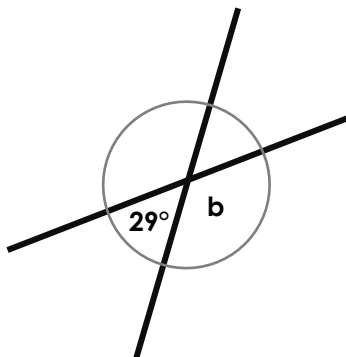
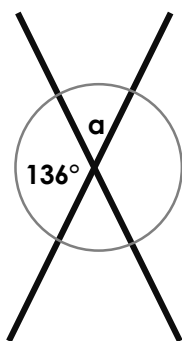


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RPS  
HW/Ext

# Vertically Opposite Angles

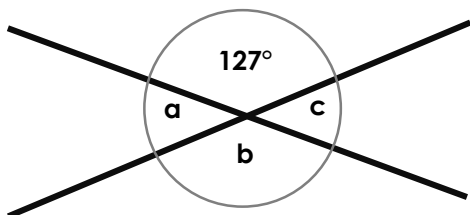
4. Find the value of the missing angles.



*Not to scale*

VF  
HW/Ext

5. Tick the boxes to show whether the statements are true or false.



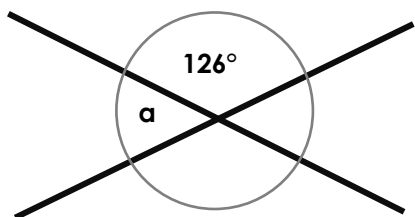
	T	F
A. Angle a is $53^\circ$	<input type="checkbox"/>	<input type="checkbox"/>
B. Angles a and c equal $180^\circ$	<input type="checkbox"/>	<input type="checkbox"/>
C. Angles a and c are equal	<input type="checkbox"/>	<input type="checkbox"/>



*Not to scale*

VF  
HW/Ext

6. Steph and Sean are calculating missing angles.



**Steph**

To find the missing angle you can subtract  $126^\circ$  from  $360^\circ$ , then divide the answer by 2.



**Sean**

To find the missing angle you can double  $126^\circ$ , subtract the answer from  $360^\circ$  and then divide the answer by 2.

Who is correct?

Explain how you know.

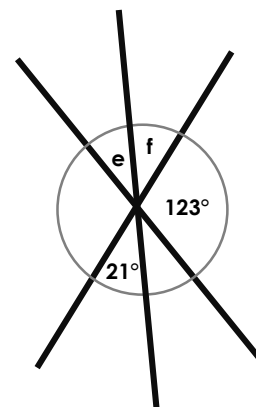
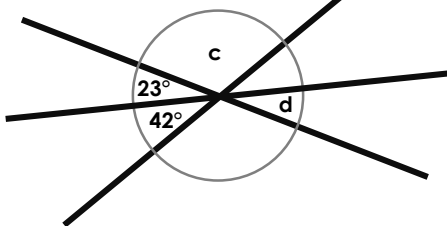
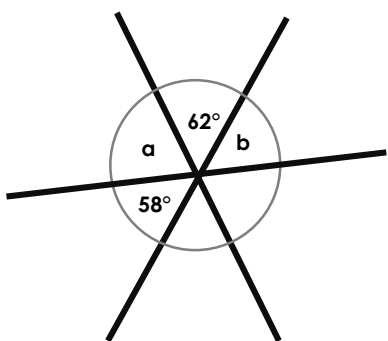


*Not to scale*

RPS  
HW/Ext

# Vertically Opposite Angles

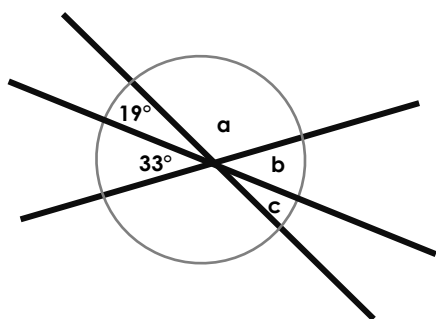
7. Find the value of the missing angles.



Not to scale

VF  
HW/Ext

8. Tick the boxes to show whether the statements are true or false.



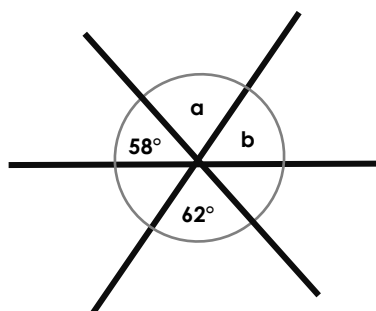
	T	F
A. Angles a, b and c add up to 180°	<input type="checkbox"/>	<input type="checkbox"/>
B. Angle a equals 128°	<input type="checkbox"/>	<input type="checkbox"/>
C. Angles b and c are equal	<input type="checkbox"/>	<input type="checkbox"/>



Not to scale

VF  
HW/Ext

9. Alice and Johnny are calculating missing angles.



Alice

I know that opposite angles are equal so angle a must equal 62°. To find the missing angle I can add 58° and 62°, and then subtract the answer from 180°.



Johnny

To find the missing angles you need to take 62° and 58° from 360°, then divide by 2.

Who is correct?

Explain how you know.



Not to scale

RPS  
HW/Ext

## Homework/Extension

### Vertically Opposite Angles

#### Developing

1.  $A = 60^\circ$ ,  $b = 140^\circ$ ,  $c = 150^\circ$ .
2. A is true, B is false (they add up to  $180^\circ$ ), C is true.
3. Hafsa is correct because angles on a straight line add up to  $180^\circ$ .

#### Expected

4.  $A = 44^\circ$ ,  $b = 151^\circ$ ,  $c = 142^\circ$ .
5. A is true, B is false (they add up to  $106^\circ$ ), C is true.
6. Sean is correct. Steph has subtracted 126 once instead of twice, she has forgotten the vertically opposite angle.

#### Greater Depth

7.  $A = 60^\circ$ ,  $b = 58^\circ$ ,  $c = 115^\circ$ ,  $d = 23^\circ$ ,  $e = 36^\circ$ ,  $f = 21^\circ$ .
8. A is true, B is true, C is false (they measure  $19^\circ$  and  $33^\circ$ ).
9. Alice is correct because angles on a straight line add up to  $180^\circ$ .