

Homework/Extension

Step 3: Calculate Angles

National Curriculum Objectives:

Mathematics Year 5: (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 Use knowledge of angles on a straight line to complete number sentences. Angles given in multiples of 10.

Expected Use knowledge of angles on a straight line to complete number sentences. Angles given in multiples of 5.

Greater Depth Use knowledge of angles around a point to complete number sentences. Angles given in exact degrees.

Questions 2, 5 and 8 (Varied Fluency)

Developing Use knowledge of angles in a right angle and on a straight line to calculate one missing angle. Angles given in multiples of 10.

Expected Use knowledge of angles in a right angle, on a straight line and around a point to calculate two missing angles. Angles given in multiples of 5.

Greater Depth Use knowledge of angles in a right angle, on a straight line and around a point to calculate two or more missing angles. Angles given in exact degrees.

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

Developing Identify and explain errors when calculating one missing angle in a straight line. Angles given in multiples of 10.

Expected Identify and explain errors when calculating two missing angles on a straight line. Angles given in multiples of 5.

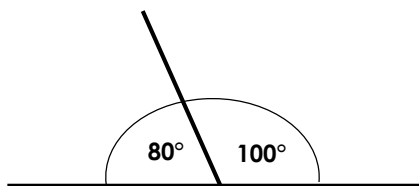
Greater Depth Identify and explain errors when calculating three missing angles around a point. Angles given in exact degrees.

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

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

Calculate Angles

1. Complete two addition sentences and two subtraction sentences to match the image below.



$$80^\circ + \square = \square$$

$$\square + \square = 180^\circ$$

$$180^\circ - \square = \square$$

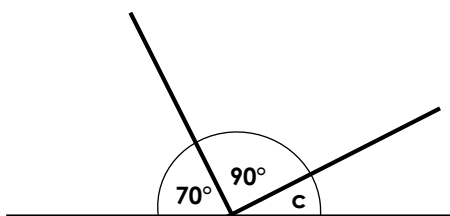
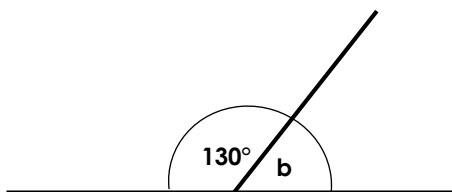
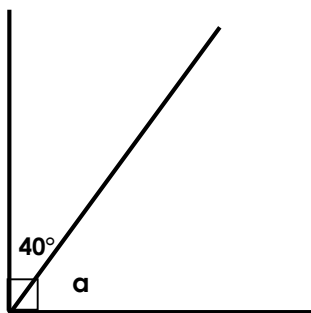
$$\square - 80^\circ = \square$$



Angles not drawn to scale.

VF
HW/Ext

2. Calculate the missing angles.



Angles not drawn to scale.

VF
HW/Ext

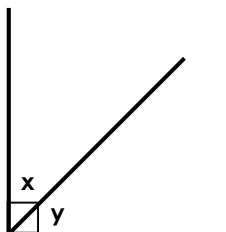
3. Mandi has been calculating angles.

She says,



I know that angles x and y are the same size, so they must each measure 40° .

Is she correct? Prove it.

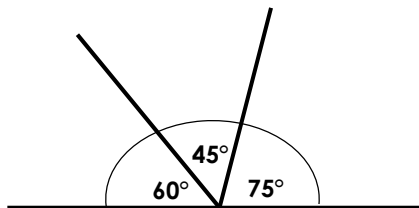


Angles not drawn to scale.

RPS
HW/Ext

Calculate Angles

4. Complete the addition and subtraction sentences to match the image below.



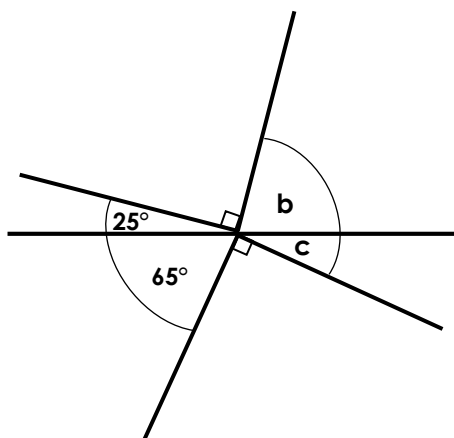
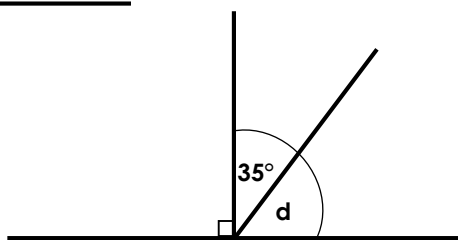
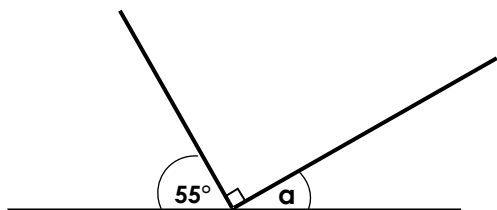
<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	+	<input type="text"/>	+	<input type="text"/>	=	<input type="text"/>
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Angles not drawn to scale.

VF
HW/Ext

5. Calculate the missing angles.



Angles not drawn to scale.

VF
HW/Ext

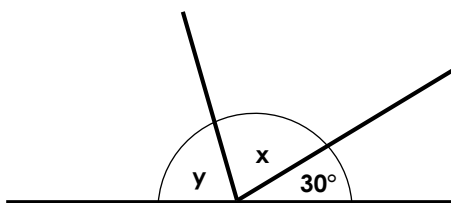
6. Terry has been calculating angles.

He says,



I know that angles x and y are the same so they must each measure 65° .

Is he correct? Prove it.

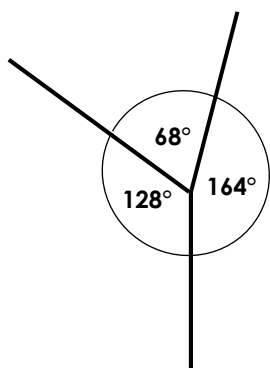


Angles not drawn to scale.

RPS
HW/Ext

Calculate Angles

7. Complete the addition and subtraction sentences to match the image below.



$$\square + \square + \square = \square$$

$$\square + \square + \square = \square$$

$$\square - \square - \square = \square$$

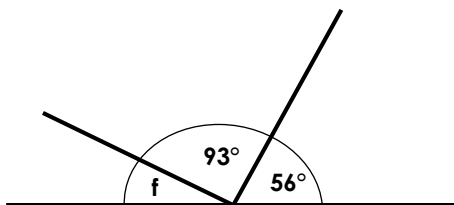
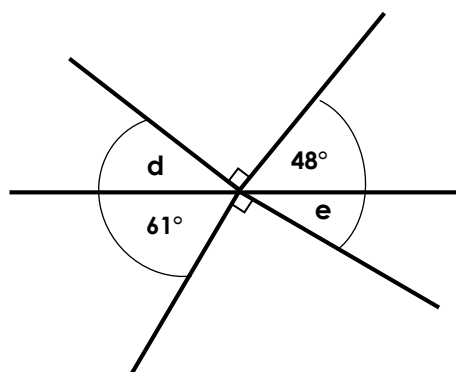
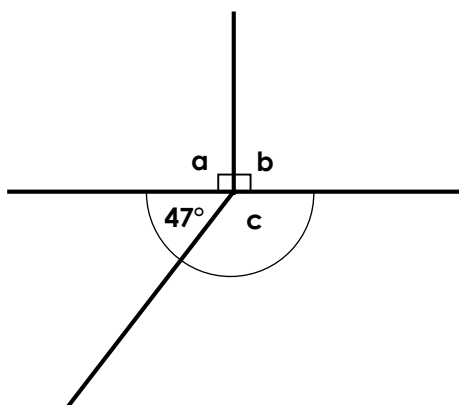
$$\square - \square - \square = \square$$



Angles not drawn to scale.

VF
HW/Ext

8. Calculate the missing angles.



Angles not drawn to scale.

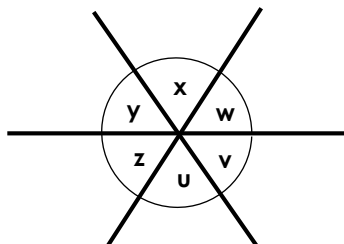
VF
HW/Ext

9. Toby has been calculating angles.

He says,



I know that each angle is the same size, so they must each measure 30° .



Is he correct? Prove it.



Angles not drawn to scale.

RPS
HW/Ext

Homework/Extension

Calculate Angles

Developing

1. $80^\circ + 100^\circ = 180^\circ$
 $100^\circ + 80^\circ = 180^\circ$
 $180^\circ - 100^\circ = 80^\circ$
 $180^\circ - 80^\circ = 100^\circ$

2. $a = 50^\circ$, $b = 50^\circ$, $c = 20^\circ$

3. Mandi is incorrect. A right angle measures 90 degrees, so angles x and y must each measure 45 degrees.

Expected

4. Various answers, for example:

$$\begin{array}{l} 60^\circ + 45^\circ + 75^\circ = 180^\circ \\ 45^\circ + 75^\circ + 60^\circ = 180^\circ \\ 180^\circ - 75^\circ - 60^\circ = 45^\circ \\ 180^\circ - 60^\circ - 45^\circ = 75^\circ \end{array}$$

5. $a = 35^\circ$, $b = 65^\circ$, $c = 25^\circ$, $d = 55^\circ$

6. Terry is incorrect. The angle of a straight line is 180 degrees, so angles x and y must each measure 75 degrees.

Greater Depth

7. Various answers, for example:

$$\begin{array}{l} 128^\circ + 68^\circ + 164^\circ = 360^\circ \\ 68^\circ + 164^\circ + 128^\circ = 360^\circ \\ 360^\circ - 164^\circ - 128^\circ = 68^\circ \\ 360^\circ - 128^\circ - 68^\circ = 164^\circ \end{array}$$

8. $a = 90^\circ$, $b = 90^\circ$, $c = 133^\circ$, $d = 42^\circ$, $e = 29^\circ$, $f = 31^\circ$

9. Toby is incorrect. The angles around a point total 360 degrees, so each angle must measure 60 degrees.