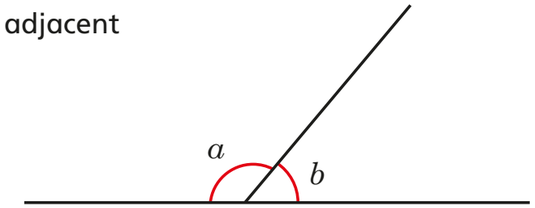
Calculate angles

1 Two angles, a and b, are adjacent on a straight line.



a) Measure angles a and b.

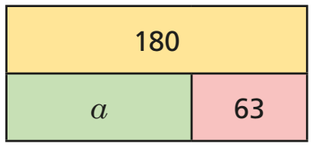
$a =$ 130° $b =$ 50°

b) What is the total of the two angles? 180°

c) Complete the sentence.

Adjacent angles on a straight line sum to 180°

2 **a)** Complete the fact family for the bar model.



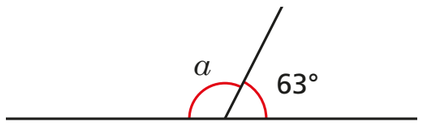
$a + 63 =$ 180 $180 -$ 63 $= a$

$63 +$ a $=$ 180 $180 - a =$ 63

b) Tick the calculation in part a) that helps you work out the value of a.

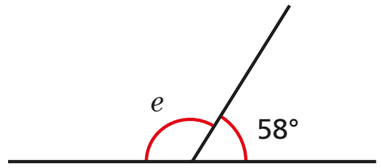
c) Work out the value of a. $a =$ 117

d) How does the bar model help you to calculate angle a?



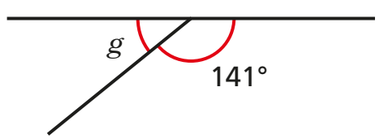
3 Work out the unknown angles.

a)



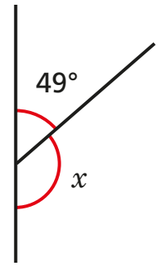
$e =$ 122°

b)



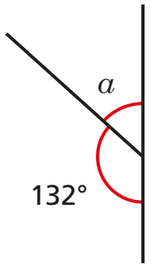
$g =$ 39°

c)



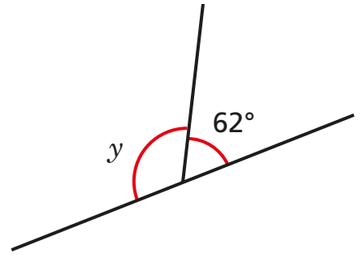
$x =$ 131°

d)



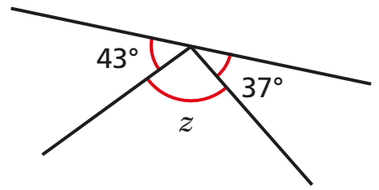
$a =$ 48°

e)



$y =$ 118°

f)



$z =$ 100°

4 Dora is facing in the direction shown by the arrow.

She does a full turn clockwise.



a) Show Dora's turn on the diagram.

b) How many degrees did Dora turn through? 360°

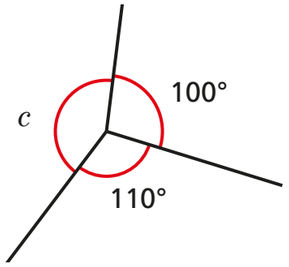
c) Use your answer to part b) to help you complete the sentence.

Angles around a point sum to 360°

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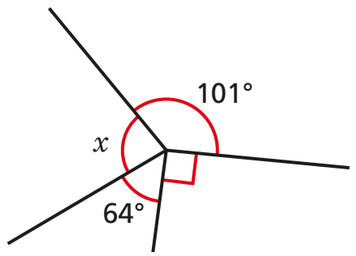
5 Work out the unknown angles.

a)



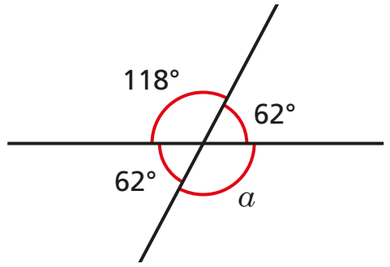
$c =$ 150°

b)



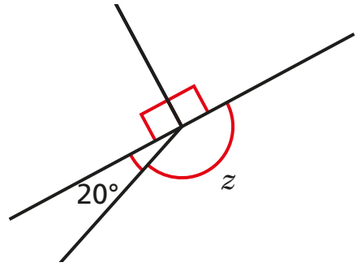
$x =$ 105°

c)



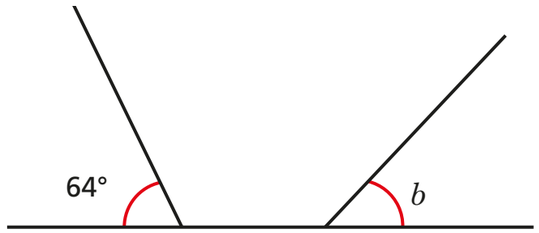
$a =$ 118°

d)

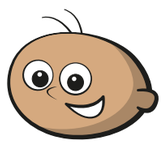


$z =$ 160°

6



Angle b is 116° because angles on a straight line add up to 180°.



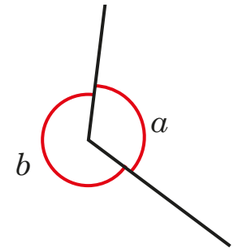
Do you agree with Tommy? No

Explain your answer.

The angles are not adjacent. There is not enough information to work out the size of angle b.

7 Use the information to work out the unknown angles.

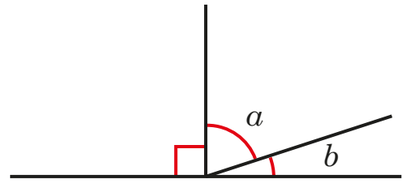
a) Angle a is half the size of angle b.



$a =$ 120°

$b =$ 240°

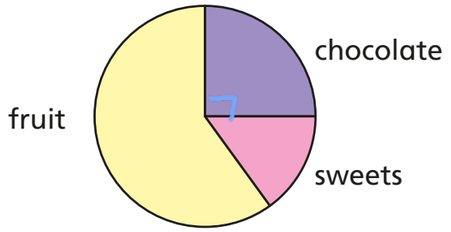
b) Angle a is four times the size of angle b.



$a =$ 72°

$b =$ 18°

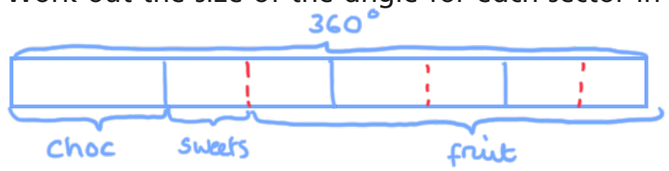
8 The pie chart shows some children's favourite snacks.



A quarter of the children said chocolate was their favourite snack.

Five times as many children voted for fruit as voted for sweets.

Work out the size of the angle for each sector in the pie chart.



chocolate 90° sweets 45° fruit 225°

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