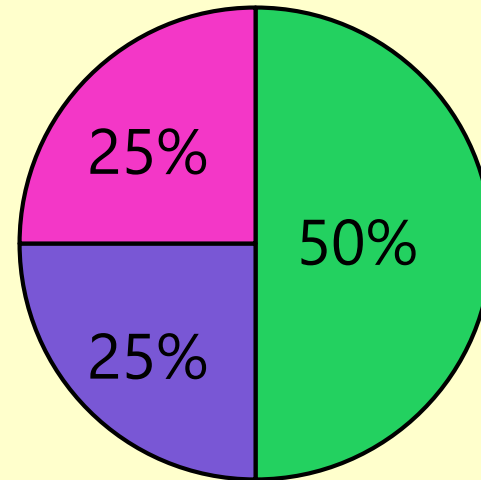
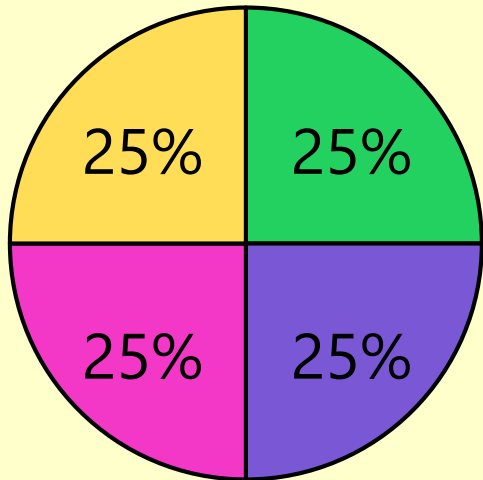


Statistics

Day 1

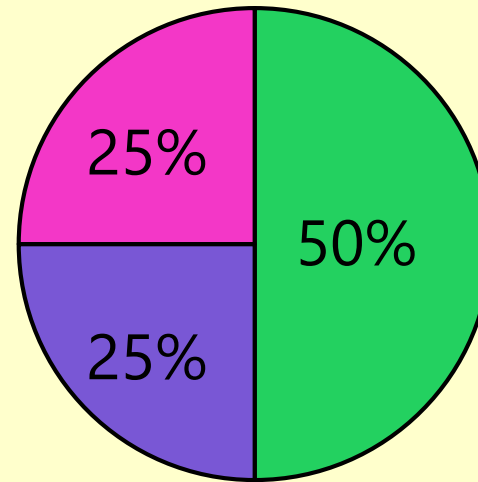
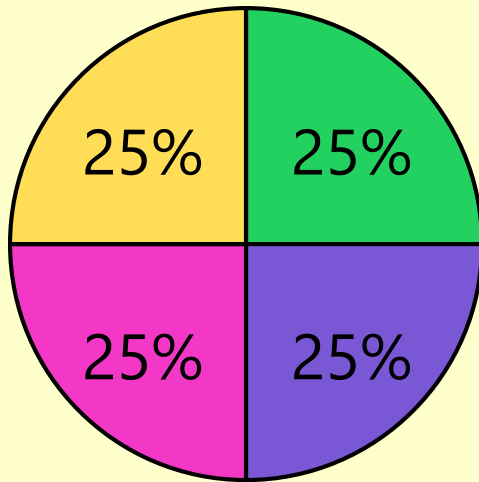
Starter

What's the same? What's different?



Starter - ANSWERS

The left-hand chart has been split into four equal parts, each representing 25%. Whereas, the right-hand chart has been split into three parts: 2 x 25% and 1 x 50%.



Date: Day 1

LO: To read and interpret pie charts with percentages.

Success Criteria

I can use my knowledge of circles to read and interpret pie charts with percentages.

I can explain my reasoning.

Descriptive Teaching

30 people were asked the following question in a survey, “Which fruit do you like best?”

30 people = 100% (the whole pie chart)

Use the percentages given on the pie chart to solve how many people like each fruit. Start with the easiest percentage (10%).

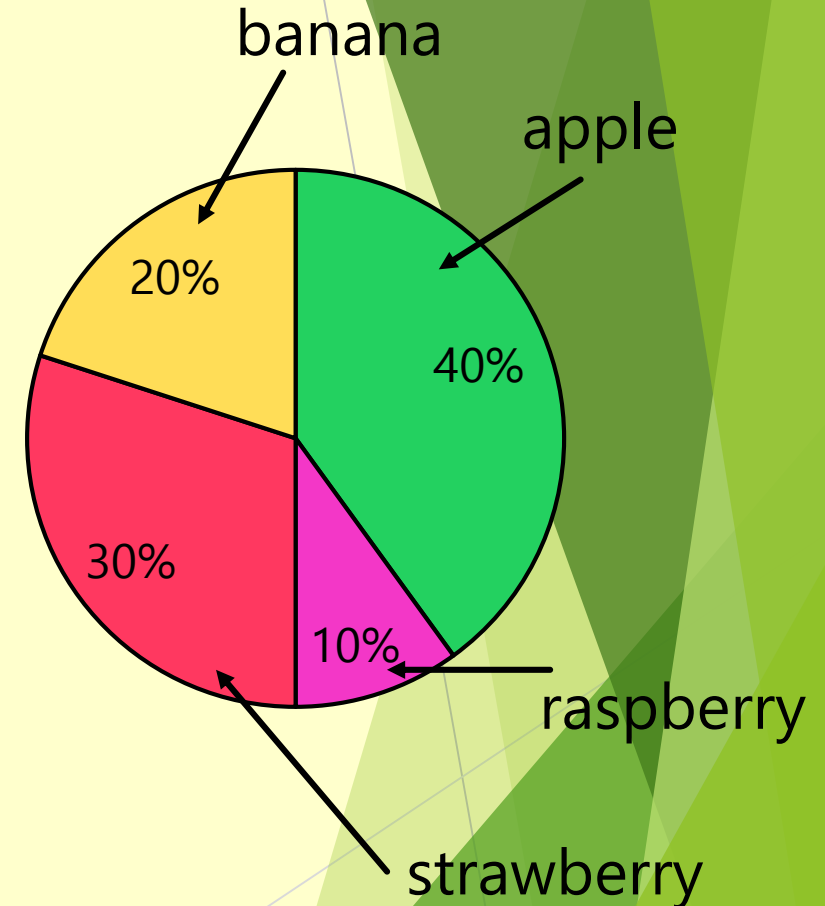
$30 \div 10\% = 3$ people chose raspberry

$20\% = (10\% \times 2)$ so $3 \times 2 = 6$ people chose banana

$40\% = (20\% \times 2)$ so $6 \times 2 = 12$ people chose apple

$30\% = (10\% \times 3)$ so $3 \times 3 = 9$ people chose strawberry

Check by adding $(3 + 6 + 12 + 9) = 30$



Descriptive Doing

90 people =
100%

Remember to
find 10% first.

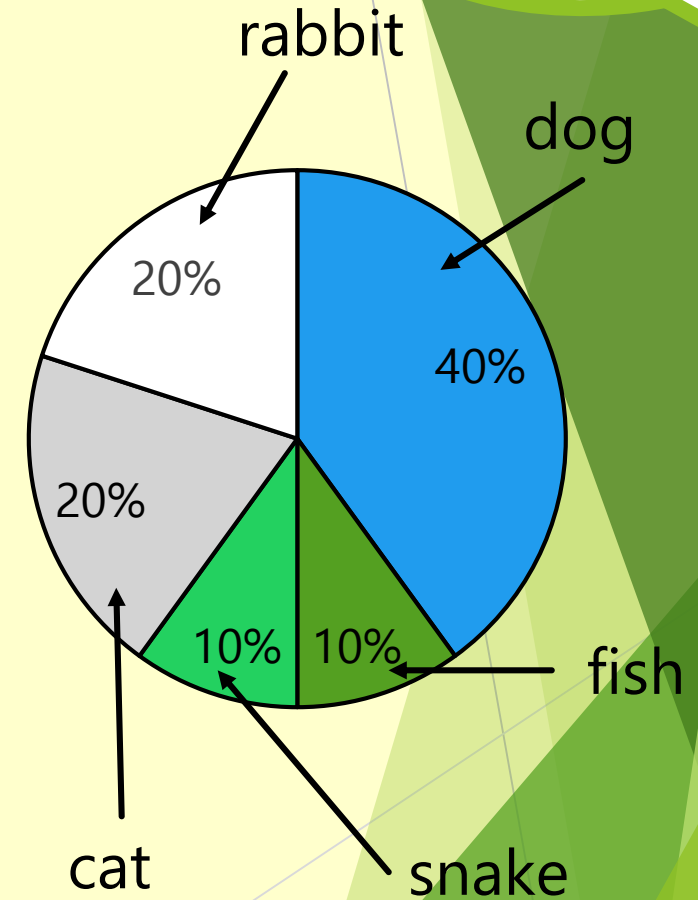
90 people were asked the following question in a survey, “Which pet do you like best?”

Complete the sentences below:

___ people chose rabbit.

___ more people chose cat than snake.

___ fewer people chose fish than dog.



Descriptive Doing - ANSWERS

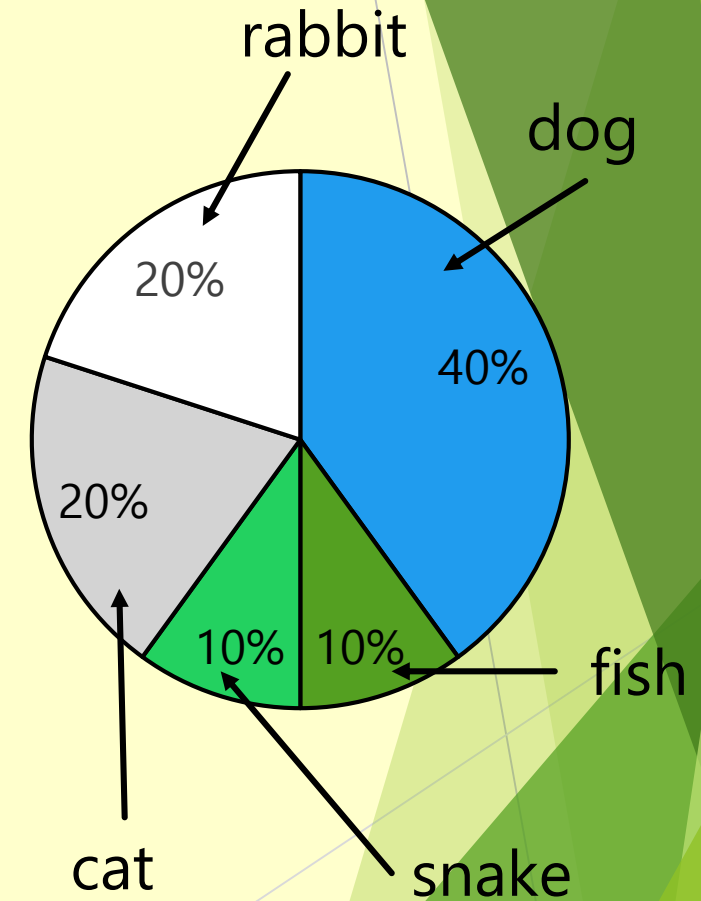
90 people were asked the following question in a survey, “Which pet do you like best?”

Complete the sentences below:

18 people chose rabbit.

9 more people chose cat than snake.

27 fewer people chose fish than dog.



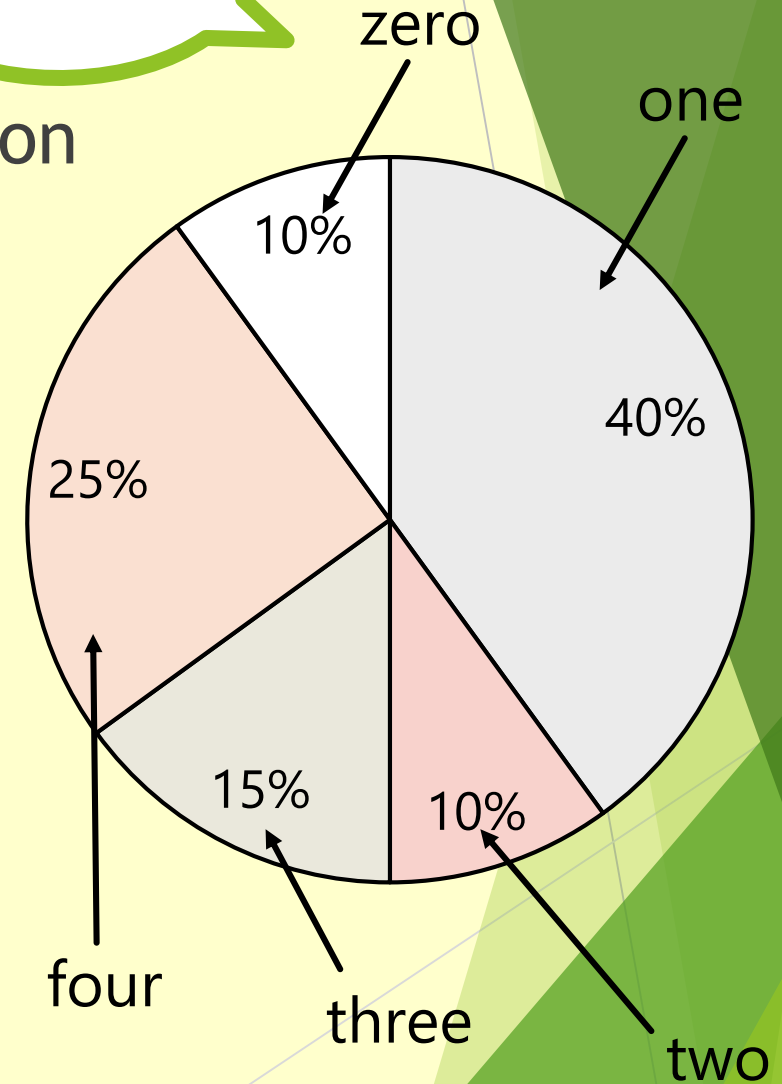
Descriptive Doing

120 people were asked the following question in a survey, “How many pets do you have?”

Complete the table below:

number of pets	frequency
zero	12
one	
two	
three	
four	

$$120 = 100\%$$

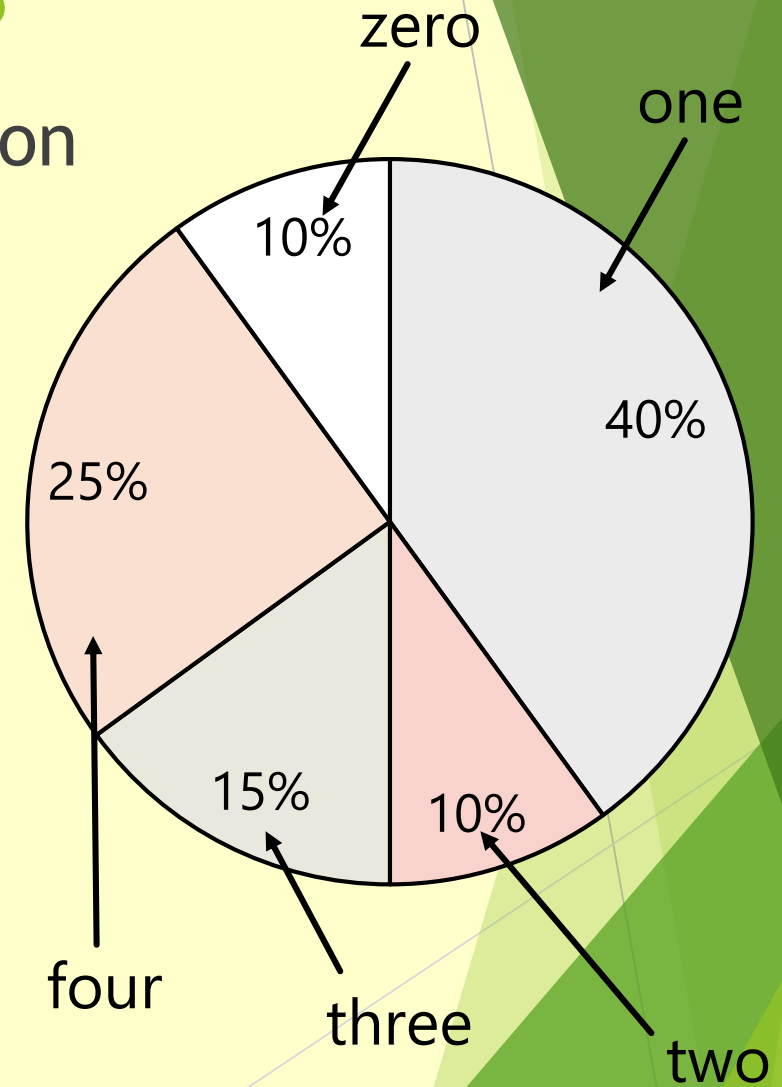


Descriptive Doing - ANSWERS

120 people were asked the following question in a survey, “How many pets do you have?”

Complete the table below:

number of pets	frequency
zero	12
one	48
two	12
three	18
four	30



Descriptive Doing

$$25\% \times 4 = 100\%$$

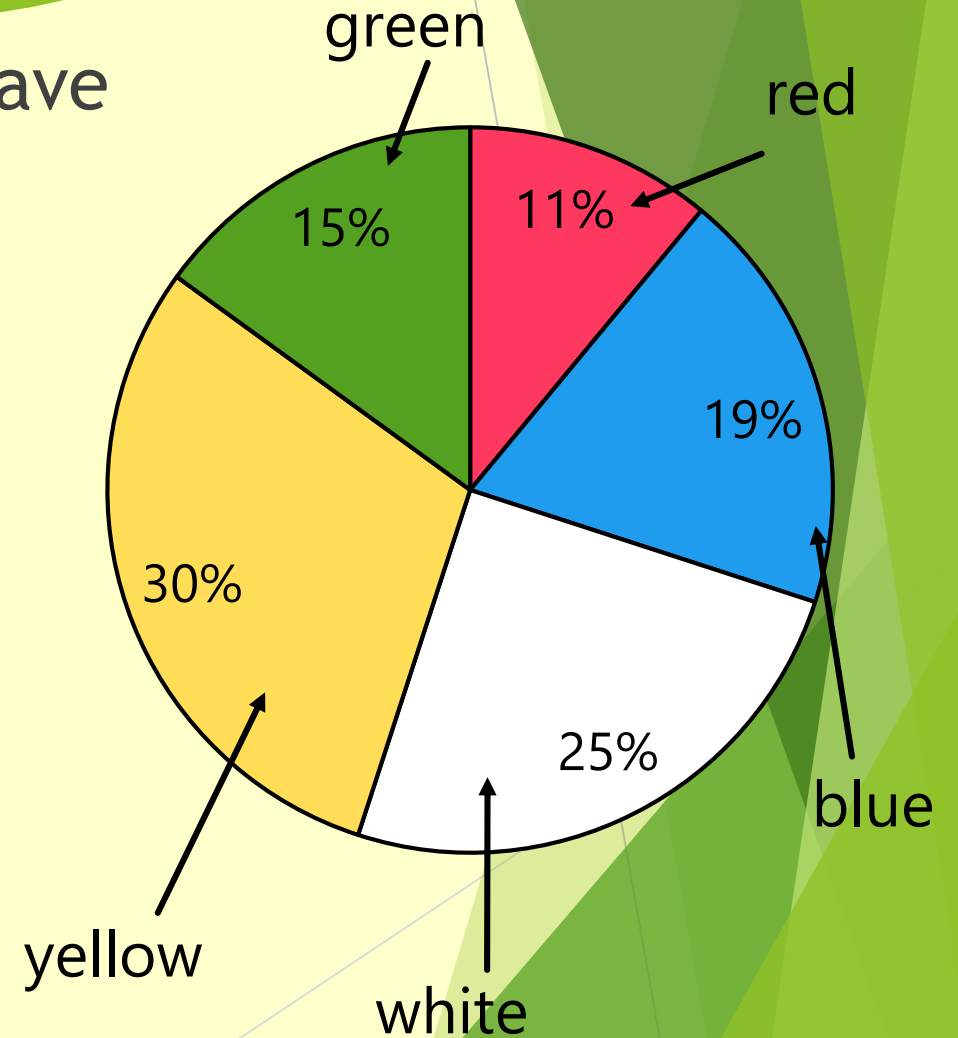
$$\text{So } 50 \times 4 =$$

The pie chart shows the various hats that have been sold in the last week on a website.

Complete the table below:

hat code	frequency
white	50
red	
orange	
yellow	
blue	

Total hats sold:



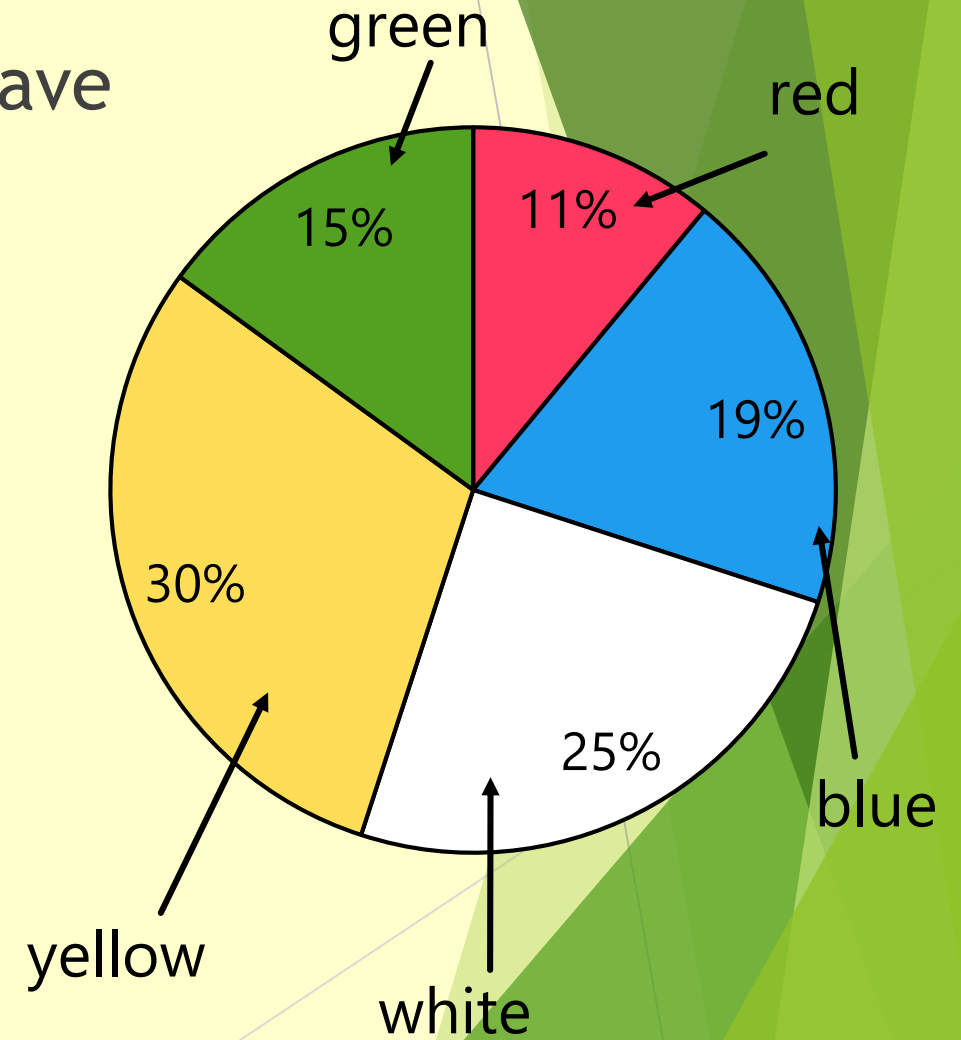
Descriptive Doing - ANSWERS

The pie chart shows the various hats that have been sold in the last week on a website.

Complete the table below:

hat code	frequency
white	50
red	22
orange	30
yellow	60
blue	38

Total hats sold: 200

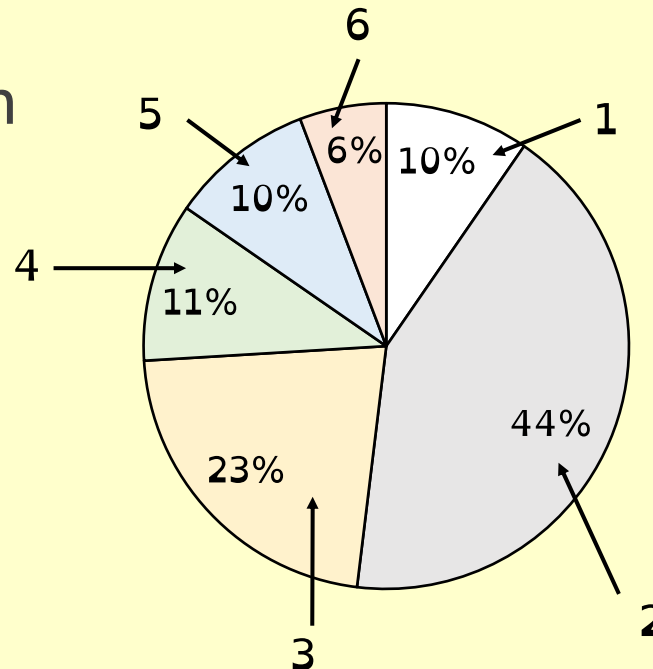


Reflective Doing

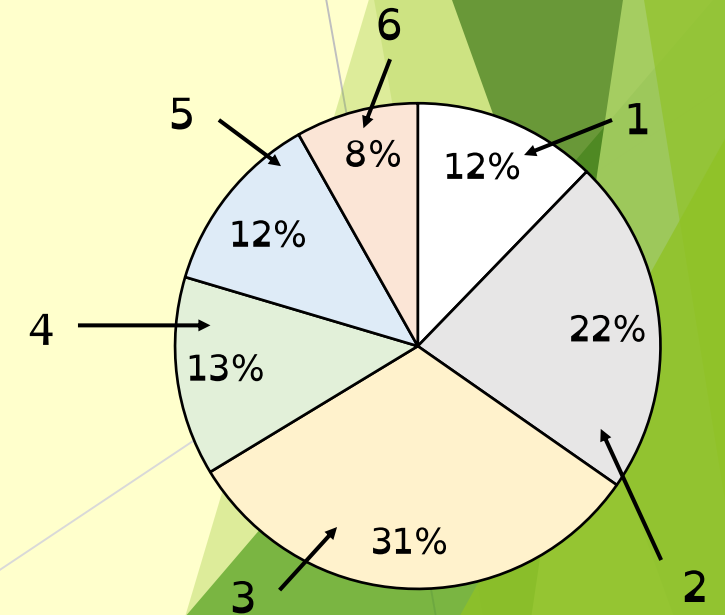
The pie chart shows the number of children there are per family in two towns.

- a) James says, “There are more 2 children families in Springfield than Hillcrest as the percentage is higher.”
Do you agree? Explain your answer.
- b) How many more 3 children families are there in Hillcrest than in Springfield?
Provide your workings as proof.

Springfield: 200 families



Hillcrest: 500 families



Reflective Doing - ANSWERS

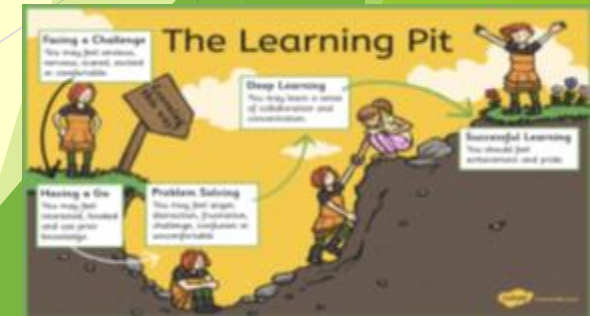
- a) No, I do not agree. There are 88 two children families in Springfield, but 110 two children families in Hillcrest.
- b) There are $2 \times 23 = 46$ three children families in Springfield and $5 \times 31 = 155$ three children families in Hillcrest.
So, Hillcrest has $155 - 46 = \underline{109 \text{ more!}}$

Choose your challenge

Challenges can be found on the document named 'Maths Challenges Day 1'.

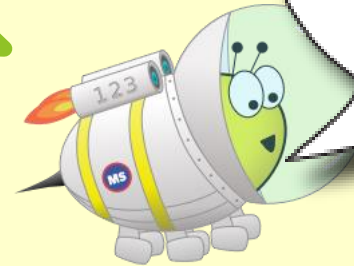
Choose an appropriate challenge OR work through green, orange and red.

Answers can be found at the bottom of the document.



Reflection Time

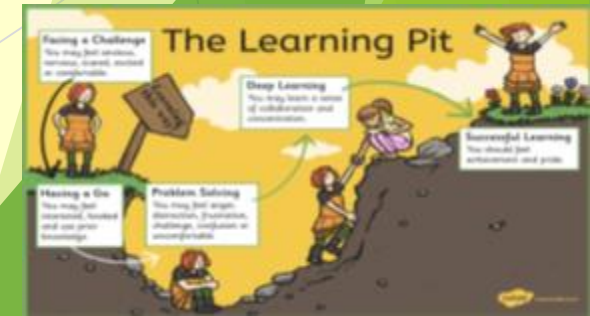
Astrobee's statement is ____ true because...



The bigger the percentage, the more of the pie chart it represents.

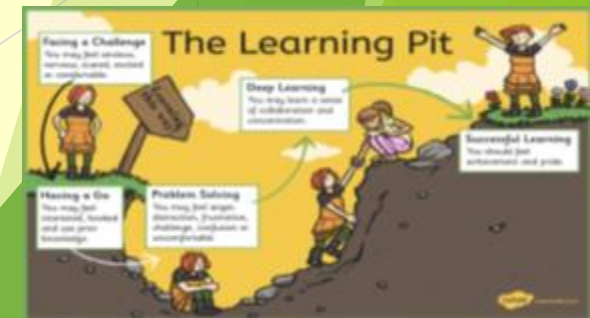
Is Astrobee's statement always, sometimes or never true?

Provide examples to help explain your answer.



Reflection Time - ANSWERS

Astrobee's statement is always true. 81% will take up 81% of a pie chart, while 11% will only be shown by 11% of the chart (or 291.6° and 39.6° respectively).



Statistics

Day 2

Starter

Three friends each have the following number of cookies:

Ahmed	     
Eve	 
Ruth	      

Share the cookies evenly to find *the mean* number of cookies.

There are 15 cookies in total.

Starter - ANSWERS

Ahmed	     
Eve	 
Ruth	      

The mean number of cookies is five.

Date: Day 2

LO: To calculate the mean.

Success Criteria

I can use my addition and division skills to calculate the mean of a set of objects or numbers.

I can explain my reasoning.

Descriptive Teaching

To find the mean of a set of numbers, you need to add the numbers to find the total, then divide by how many numbers there are.

e.g. 6 1 2 3

$$6 + 1 + 2 + 3 = 12$$

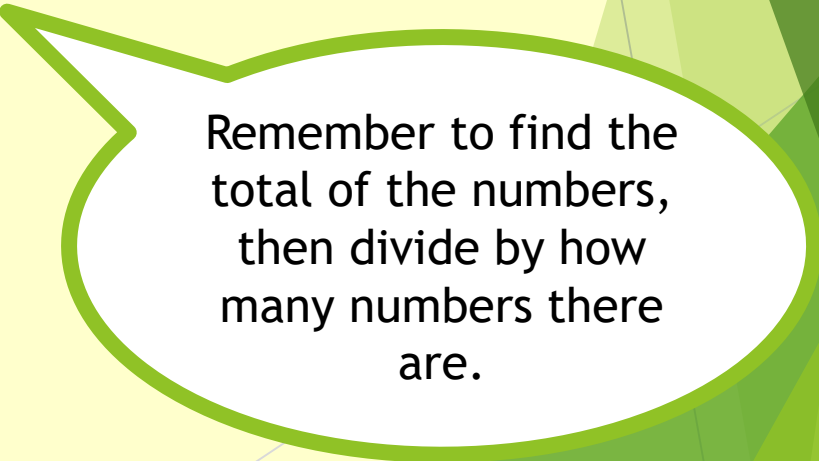
$$12 \div 4 = 3$$

The mean is 3.

Descriptive Doing

Find the mean of the sets of numbers:

1. 8 4 2 6
2. 9 8 4 2 7
3. 9 8 8 9 6
4. 11 15 9 12 9
5. 13 8 11 12 10



Remember to find the total of the numbers, then divide by how many numbers there are.

Descriptive Doing - ANSWERS

Find the mean of the sets of numbers:

1. 5

2. 6

3. 8

4. 11.2

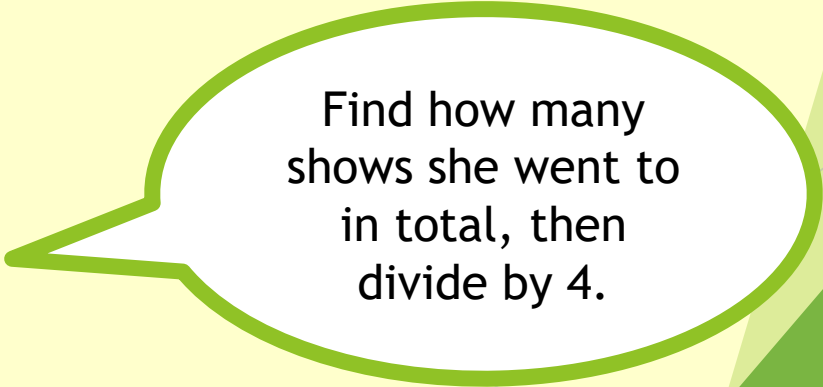
5. 10.8

Descriptive Doing

Ruth likes going to watch musical theatre. She has kept a record of the number of shows she has seen in recent years.

Work out the mean number of shows Ruth attended per year between 2016-2019.

year	number of shows
2016	87
2017	103
2018	66
2019	76



Find how many shows she went to in total, then divide by 4.

Descriptive Doing - ANSWERS

year	number of shows
2016	87
2017	103
2018	66
2019	76

The mean number of shows Ruth attended is 83.

Reflective Doing

Jamal has played four levels of a video game. The mean number of points he has won per level is 55.

- a) How many points has he won in total so far?

- b) After Level 5, his points per level has increased to 60 points.
How many points did he win playing Level 5?

Reflective Doing - ANSWERS

- a) How many points has he won in total so far?
Jamal has won 220 points, as $4 \times 55 = 220$.
- b) After Level 5, his points per level has increased to 60 points.
How many points did he win playing Level 5?
If the mean has gone up to 60 points per level after five levels, then Jamal's points total has increased to 300 points, because $5 \times 60 = 300$.
So, $300 - 220 = \underline{80 \text{ points}}$ were won playing Level 5.

Reflective Doing

There are six number cards. Two are blank.
The mean of the numbers is 11.
Fill in the two missing number cards (one
number is worth triple the other).

7

11

9

7

Reflective Doing - ANSWERS

7

8

11

9

24

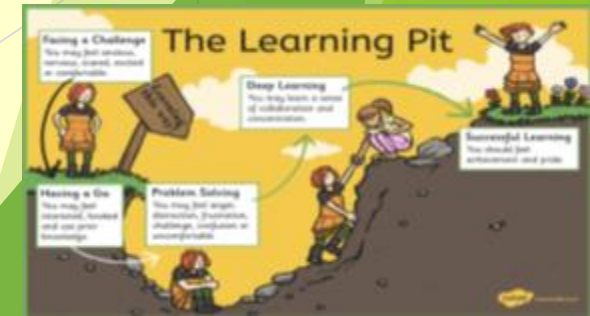
7

Choose your challenge

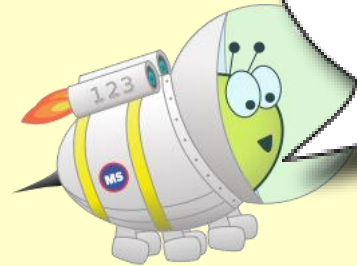
Challenges can be found on the document named 'Maths Challenges Day 2'.

Choose an appropriate challenge OR work through green, orange and red.

Answers can be found at the bottom of the document.



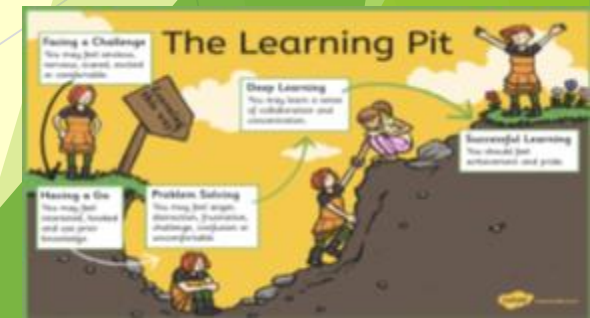
Reflection Time



If a group of honey jars have a weight of 1.2 kg each and I deliver a 1.4 kg jar, the mean will stay the same.

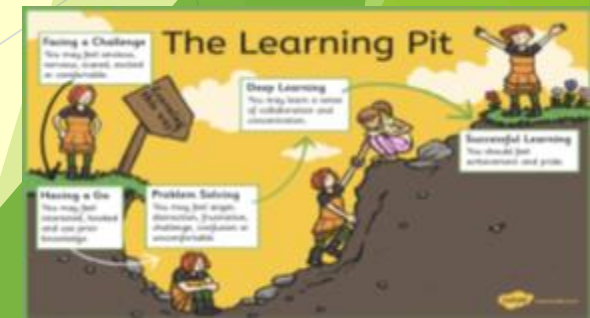
The statement is ____ because...

Is Astrobee's statement true or false?
Provide an example scenario to help explain your answer.



Reflection Time - ANSWERS

Astrobee's statement is false. The mean will increase. For example, say currently, there are 1.1, 1.2 and 1.3 kg jars (mean = 1.2), if a 1.4 kg jar is added the mean increases to 1.25 kg, as $1.1 + 1.2 + 1.3 + 1.4 = 5$ kg and $5 \div 4 = 1.25$ kg.



- ▶ For the next couple of weeks, you will need a protractor for Maths as you will be measuring angles and constructing shapes.
- ▶ Protractors can be collected from school if you do not have access to one. Please contact me first so this can be arranged. (A message was sent out via Class Dojo last week regarding this).

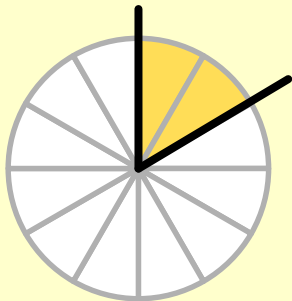
Properties of Shape

Day 3

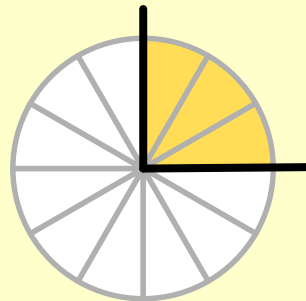
Starter

Revise the following angle terminology.

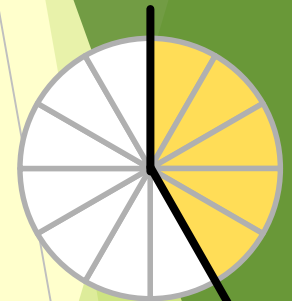
You could
create a poster
to remember
the facts!



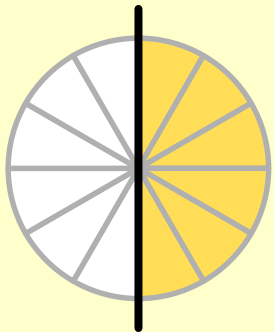
acute angle
(less than 90°)



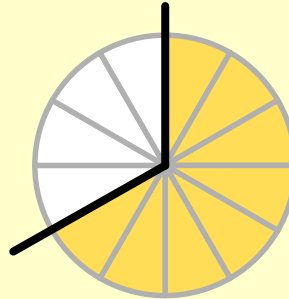
right angle
(exactly 90°)



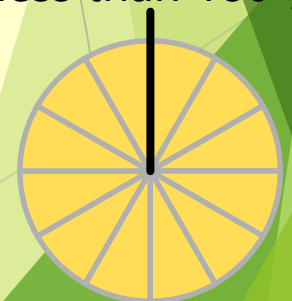
obtuse angle
(more than 90° ,
less than 180°)



straight line / half turn
(exactly 180°)



reflex angle
(between 180° and 360°)



full turn
(exactly 360°)

Date: Day 3

LO: To be able to measure with a protractor.

Success Criteria

I can line up a protractor accurately and identify the correct scale to use, giving a correct measurement.

I can explain my reasoning.

Descriptive Teaching

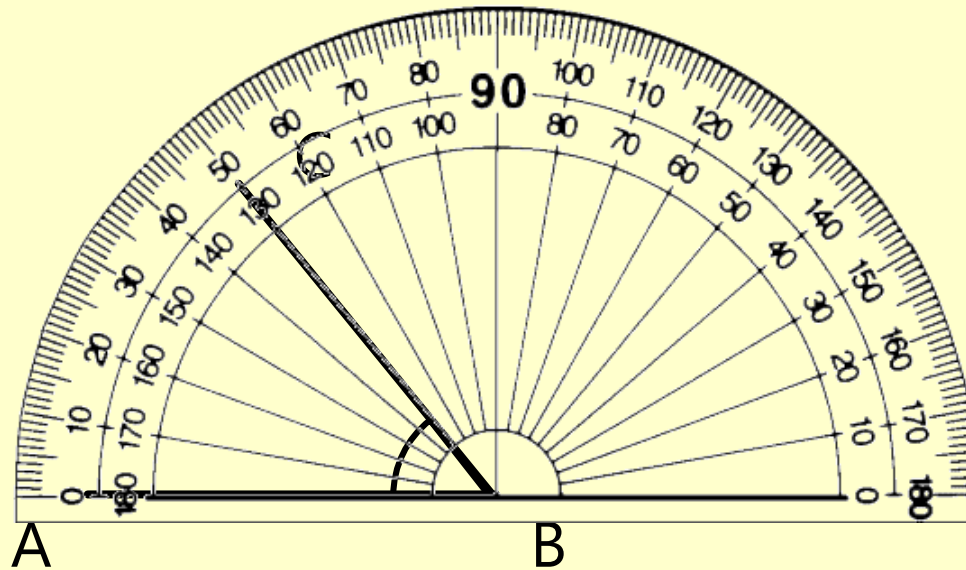
Watch the video which explains how to use a protractor to measure angles.

https://www.google.com/search?q=how+to+use+a+protractor+video&rlz=1C1GCEU_en-GBGB854GB854&oq=how+to+use+a+protr&aqs=chrome.4.0l2j69i57j0l5.8365j0j7&sourceid=chrome&ie=UTF-8#kpvalbx=_kLfXXvquErTuxgP6vbn4Dg45

Descriptive Doing

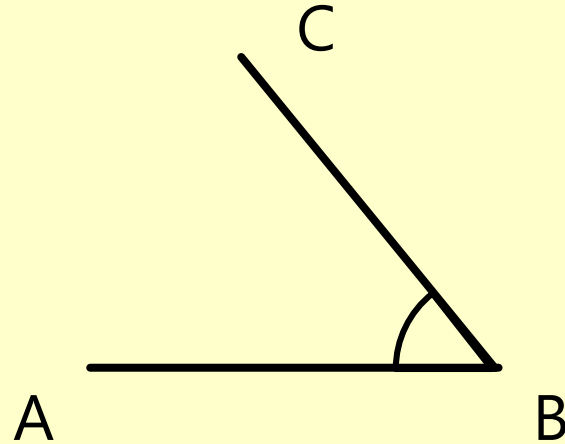
Measure the angle, then complete the sentence below.

Use the
protractor on
screen.



It is a/an _____ angle. It has a measurement of ____°.

Descriptive Doing - ANSWERS

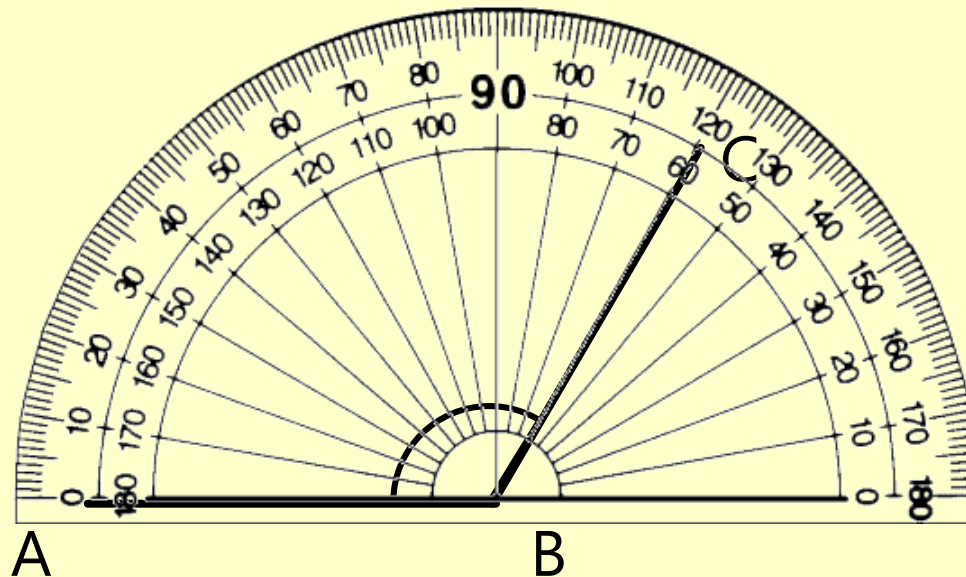


It is an **acute** angle. It has a measurement of **50°**.

Descriptive Doing

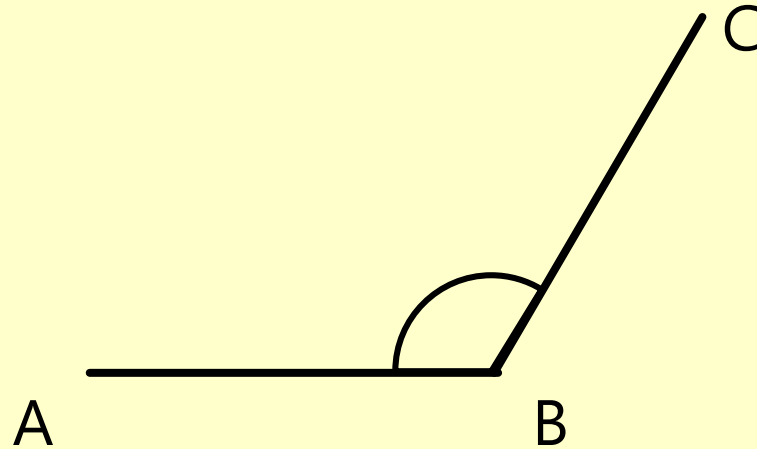
Measure the angle, then complete the sentence below.

Use the
protractor on
screen.



It is a/an _____ angle. It has a measurement of ____°.

Descriptive Doing - ANSWERS

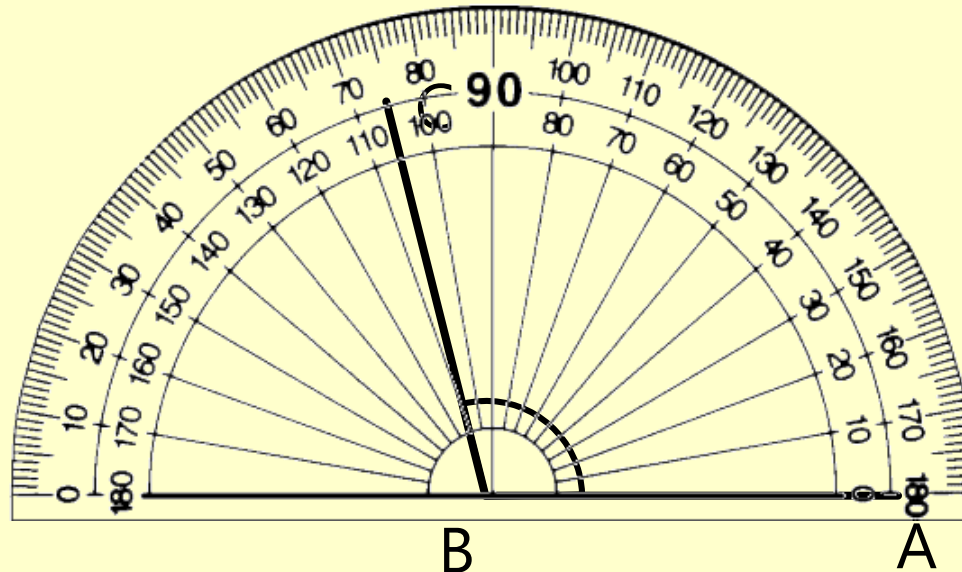


It is an **obtuse** angle. It has a measurement of **120°**.

Descriptive Doing

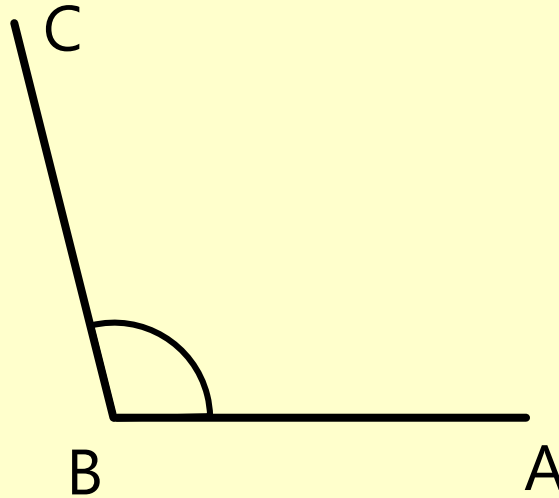
Measure the angle, then complete the sentence below.

Use the
protractor on
screen.



It is a/an _____ angle. It has a measurement of ____°.

Descriptive Doing - ANSWERS

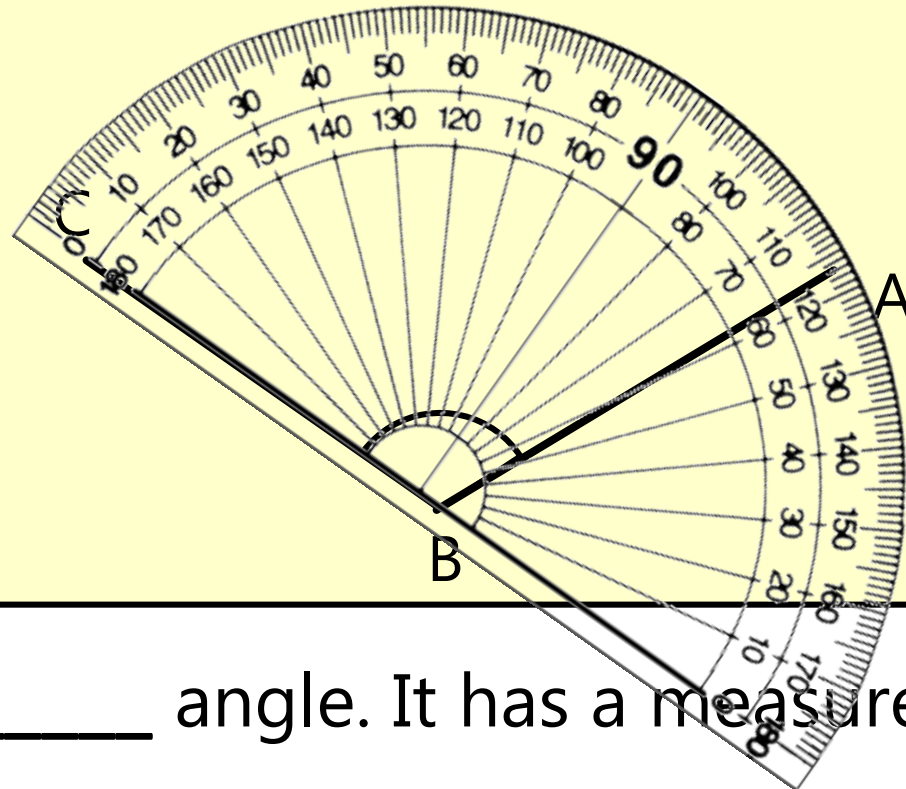


It is an **obtuse** angle. It has a measurement of **105°**.

Descriptive Doing

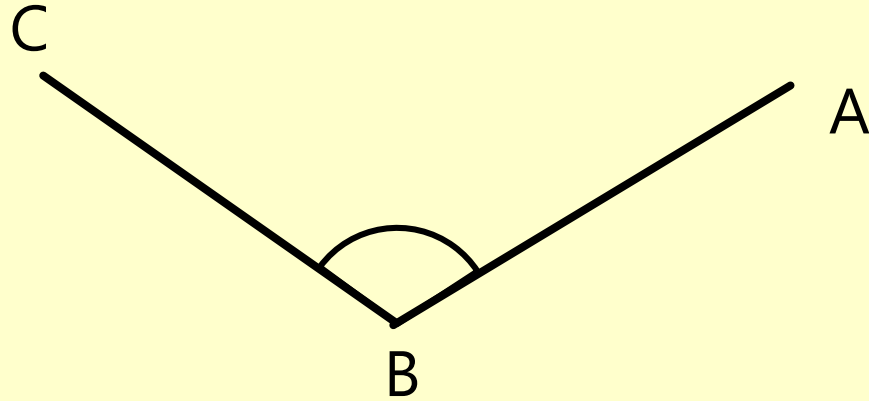
Measure the angle, then complete the sentence below.

Use the
protractor on
screen.



It is a/an _____ angle. It has a measurement of ____°.

Descriptive Doing



It is an **obtuse** angle. It has a measurement of **115°**.

Reflective Teaching

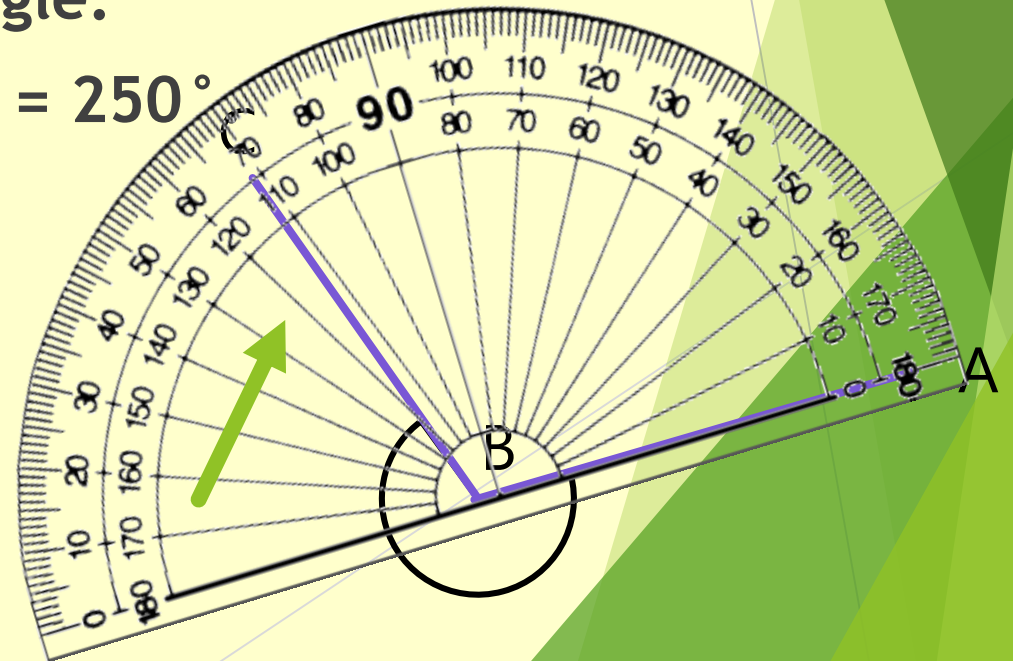
This is a reflex angle. We can still use a protractor to measure the angle.

A straight line is 180° .

We can place the centre of the protractor on vertex B and measure the remainder of the reflex angle.

This measures 70° . Therefore $180 + 70 = 250^\circ$.

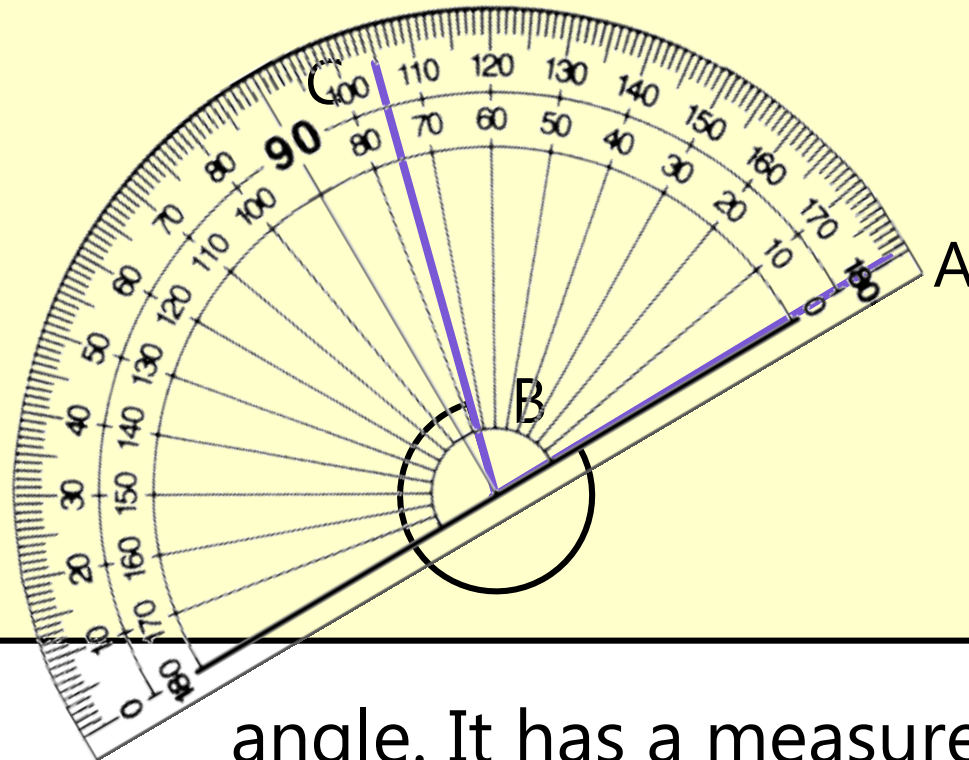
The reflex angle is 250° .



Reflective Doing

Measure the angle, then complete the sentence below.

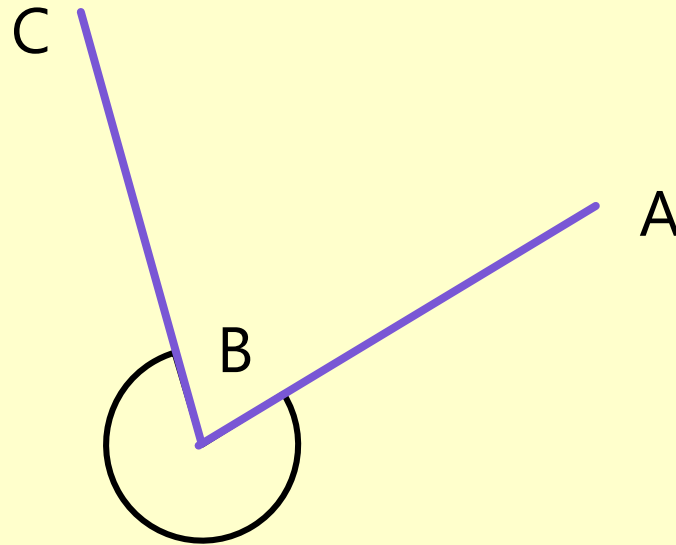
Use the
protractor on
screen.



This is a
reflex angle.

It is a/an _____ angle. It has a measurement of ____°.

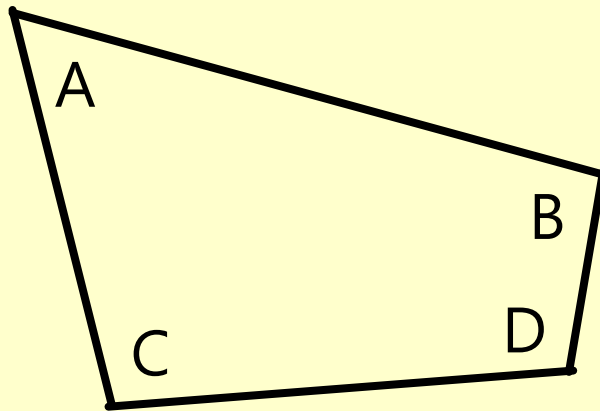
Reflective Doing - ANSWERS



It is a **reflex** angle. It has a measurement of **285°**.

Reflective Doing

Draw an irregular quadrilateral, like the one shown below.

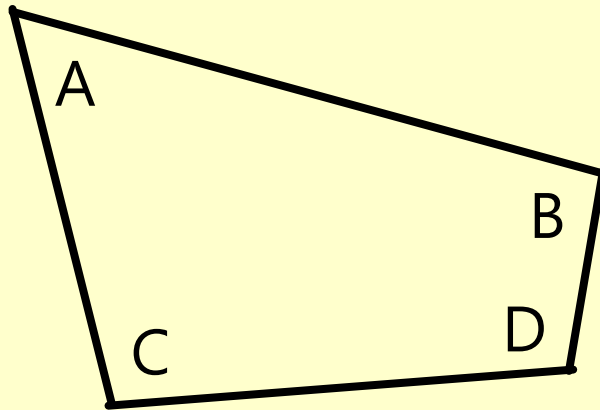


Measure all four of the angles.
What is the sum of the four angles?
Explain your answer.

Use a ruler!

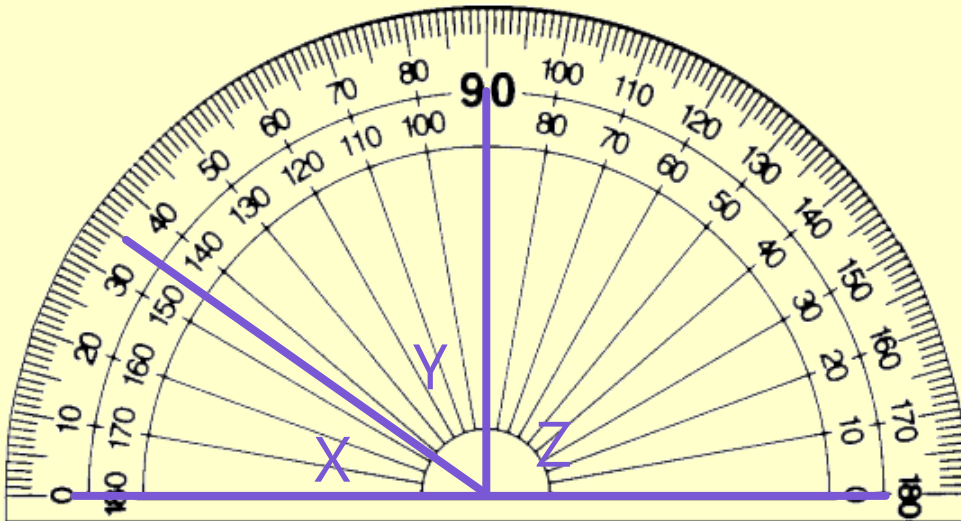
Reflective Doing - ANSWERS

The sum of the four angles must be 360° .



Reflective Doing

What are the values of each of the angles below?

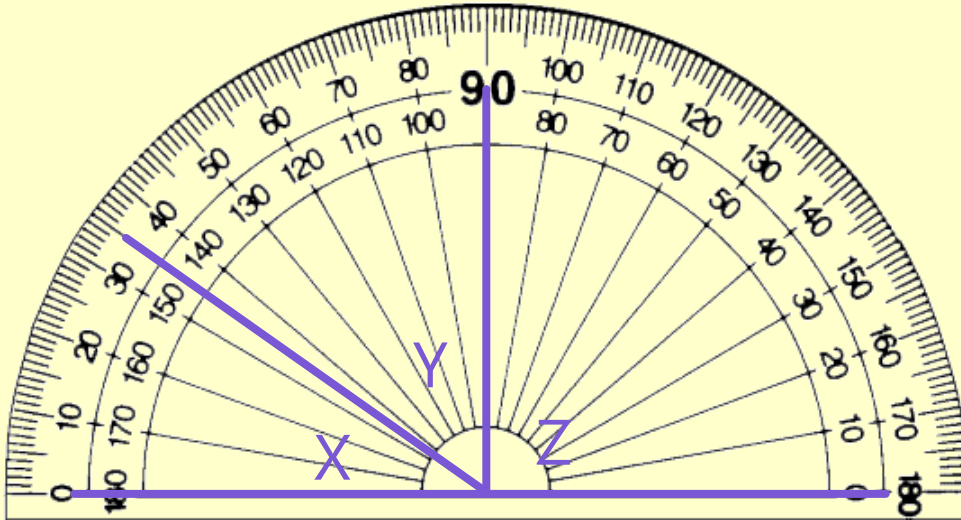


Use the
protractor on
screen.

Explain your answer.

Reflective Doing - ANSWERS

$X = 35^\circ$; $Y = 55^\circ$; $Z = 90^\circ$

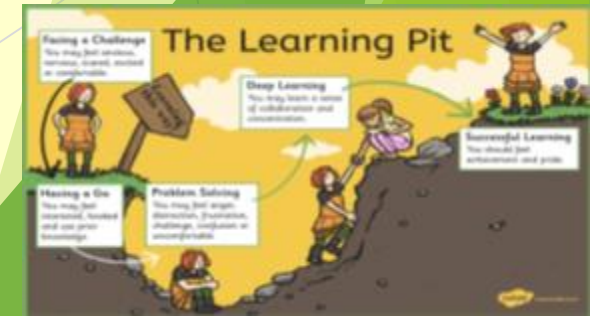


Choose your challenge

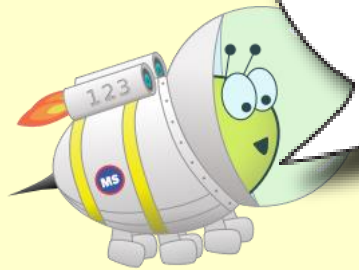
Challenges can be found on the document named 'Maths Challenges Day 3'.

Choose an appropriate challenge OR work through green, orange and red.

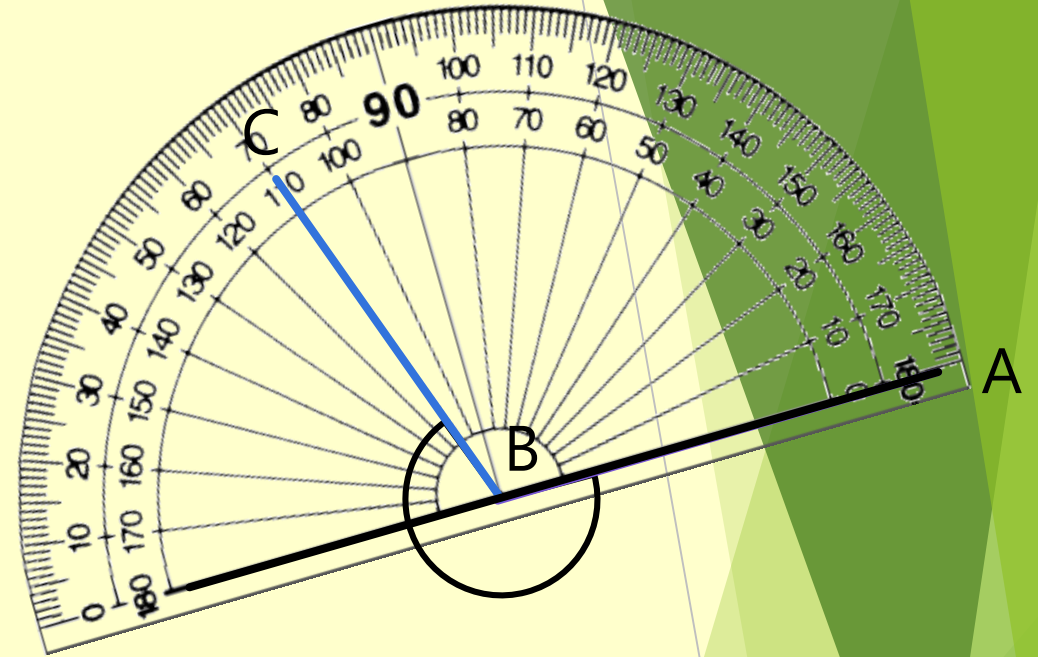
Answers can be found at the bottom of the document.



Reflection Time

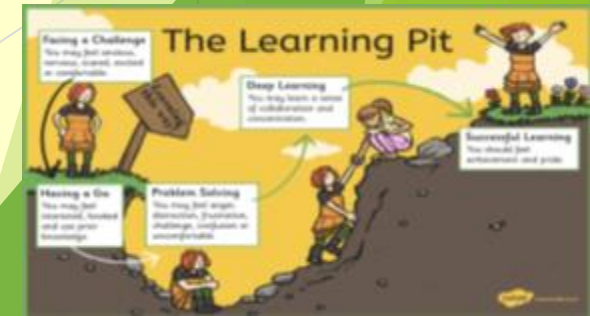


The angle above
measures 110° .



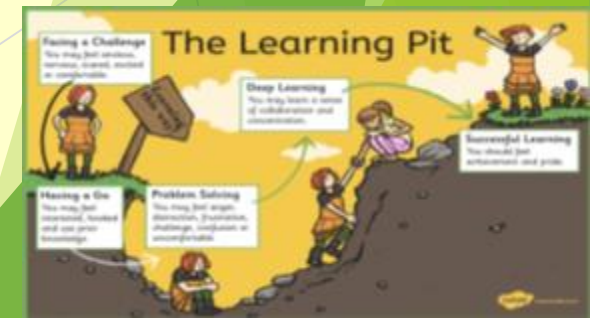
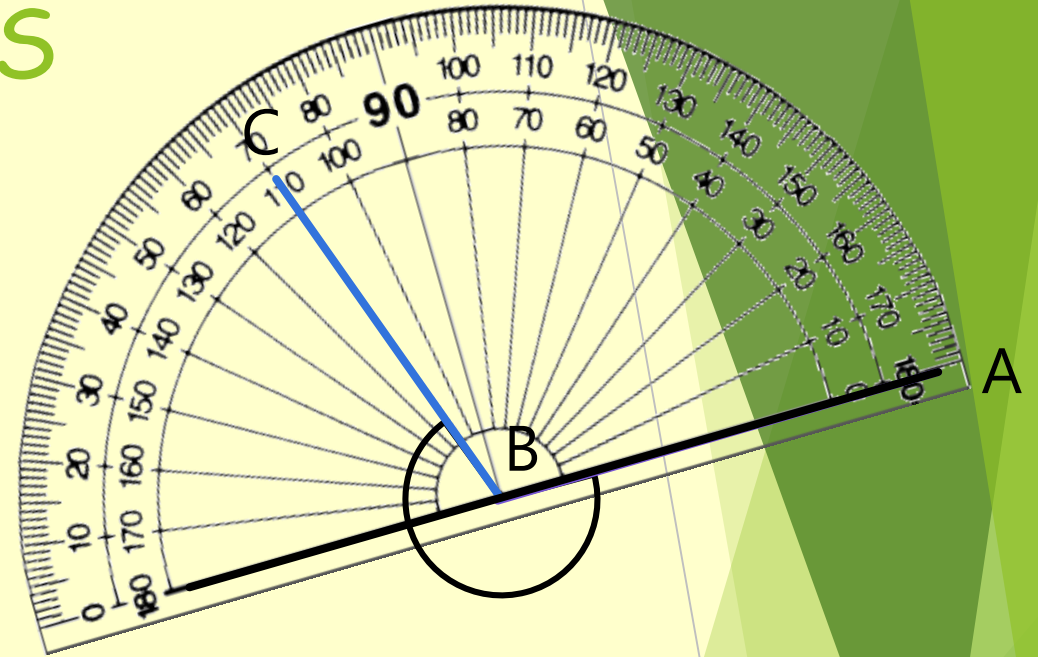
What has Astrobee done wrong?
Explain your answer.

Astrobee has...



Reflection Time - ANSWERS

Astrobee has measured using the incorrect scale. Astrobee could subtract this measurement from 360° or measure from the other scale, getting a measurement of 70° and add this to 180° to arrive at the correct answer, 250° .

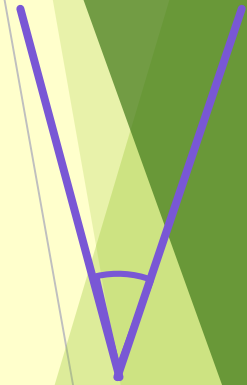
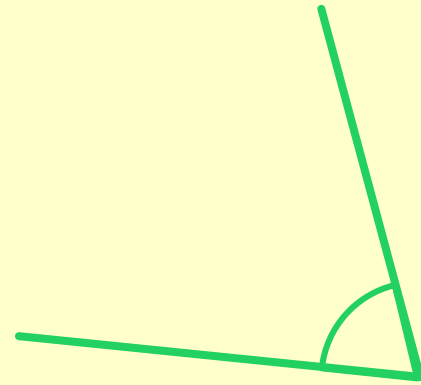
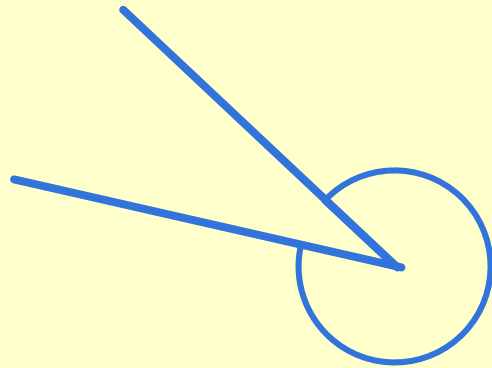
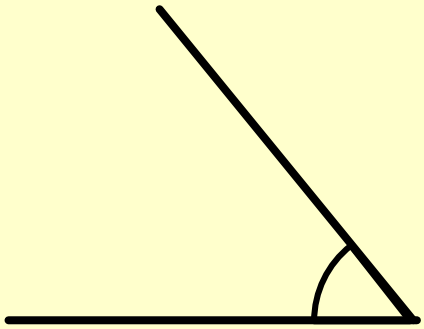


Properties of Shape

Day 4

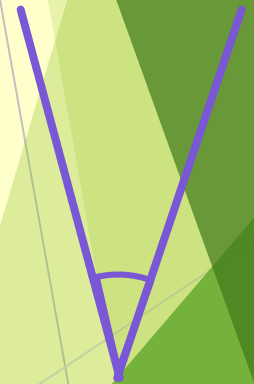
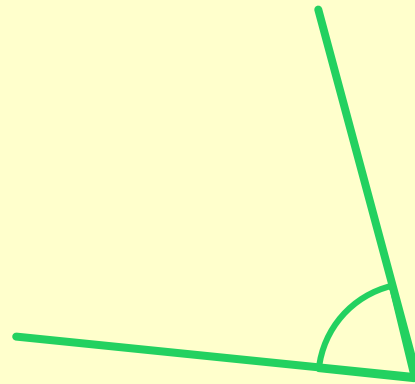
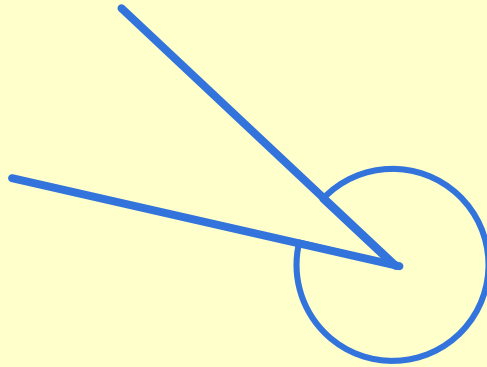
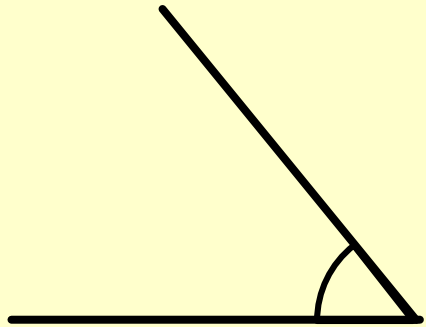
Starter

Which one doesn't belong?



Starter - ANSWERS

The blue angle doesn't belong as it is a reflex angle, whereas the other three angles are all acute angles.



Date: Day 4

LO: To explore angle facts and real-world use of angles.

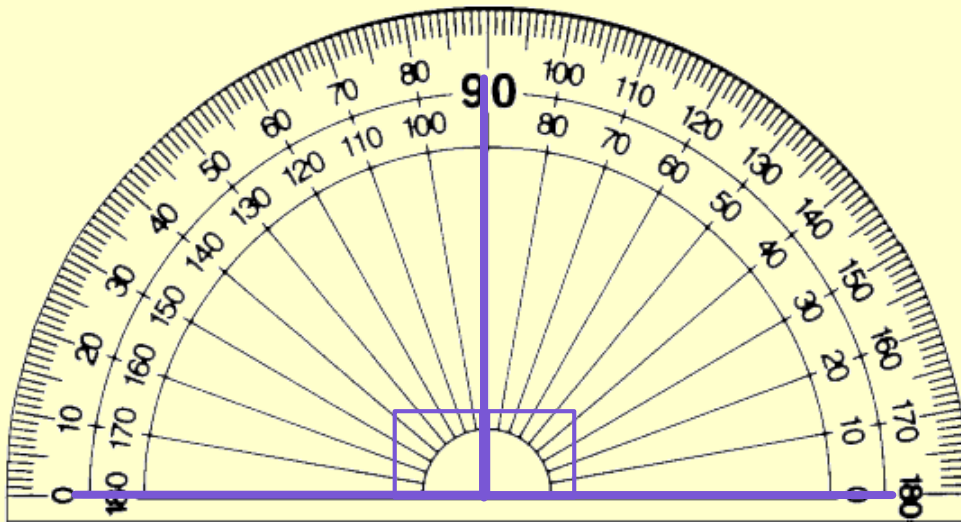
Success Criteria

I can explore angle facts and real-world uses of angles, such as clockfaces and compasses.

I can explain my reasoning.

Descriptive Doing

Look at the representation below, then complete the accompanying sentences.

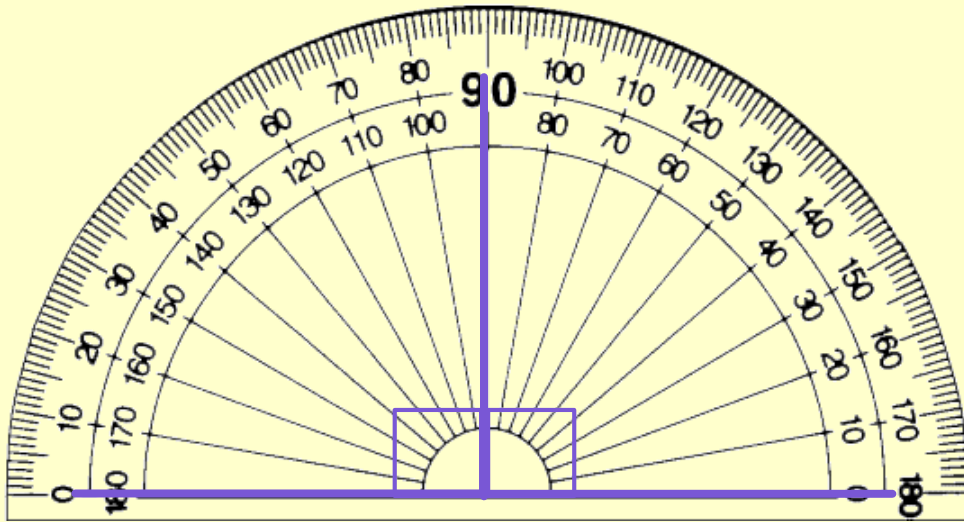


The value of a right angle is ____°.

There are ____ right angles
in a straight line.

The value of a straight line is ____°.

Descriptive Doing - ANSWERS



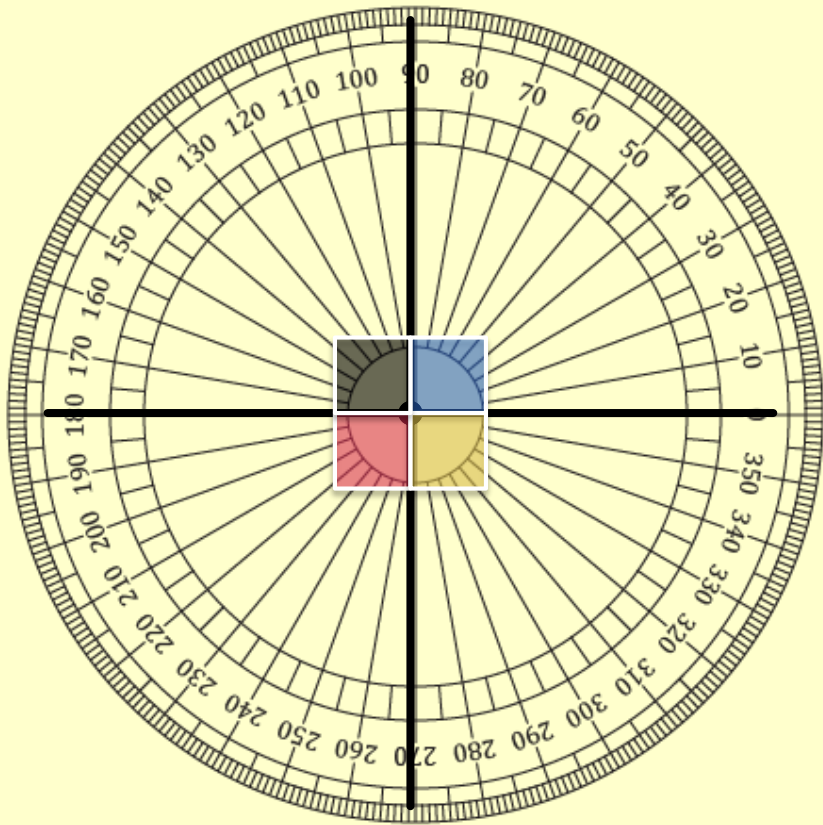
The value of a right angle is **90°**.

There are **two** right angles
in a straight line.

The value of a straight line is **180°**.

Descriptive Doing

Look at the representation below, then complete the accompanying sentences.

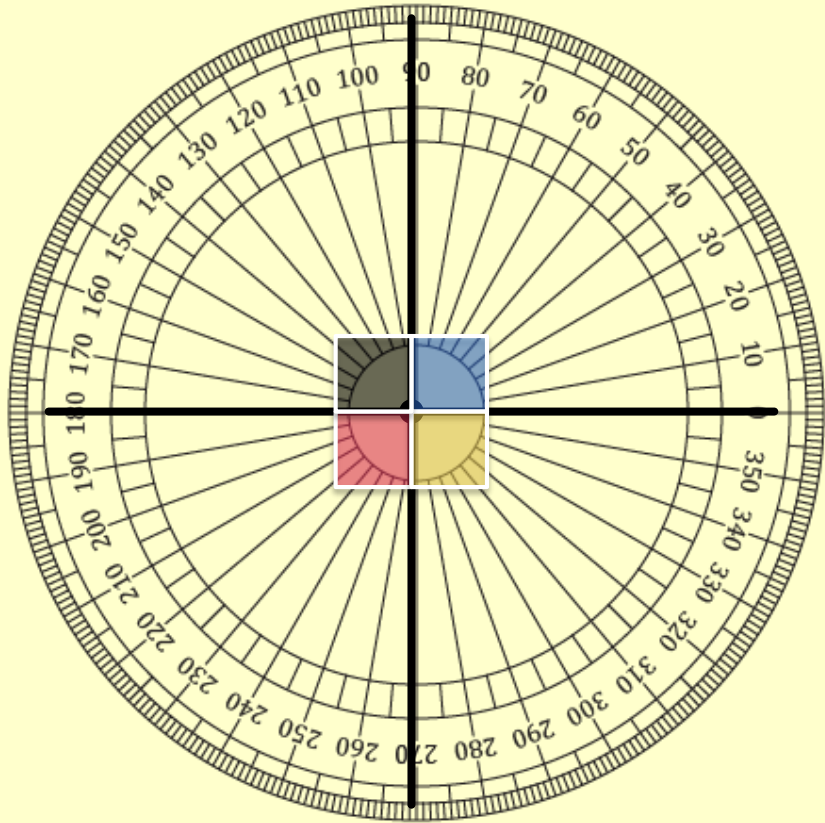


The value of a right angle is ____°.

There are ____ right angles
in a full turn.

The value of a full turn is ____°.

Descriptive Doing - ANSWERS



The value of a right angle is **90°**.

There are **four** right angles
in a full turn.

The value of a full turn is **360°**.

Descriptive Doing

Complete the table below.

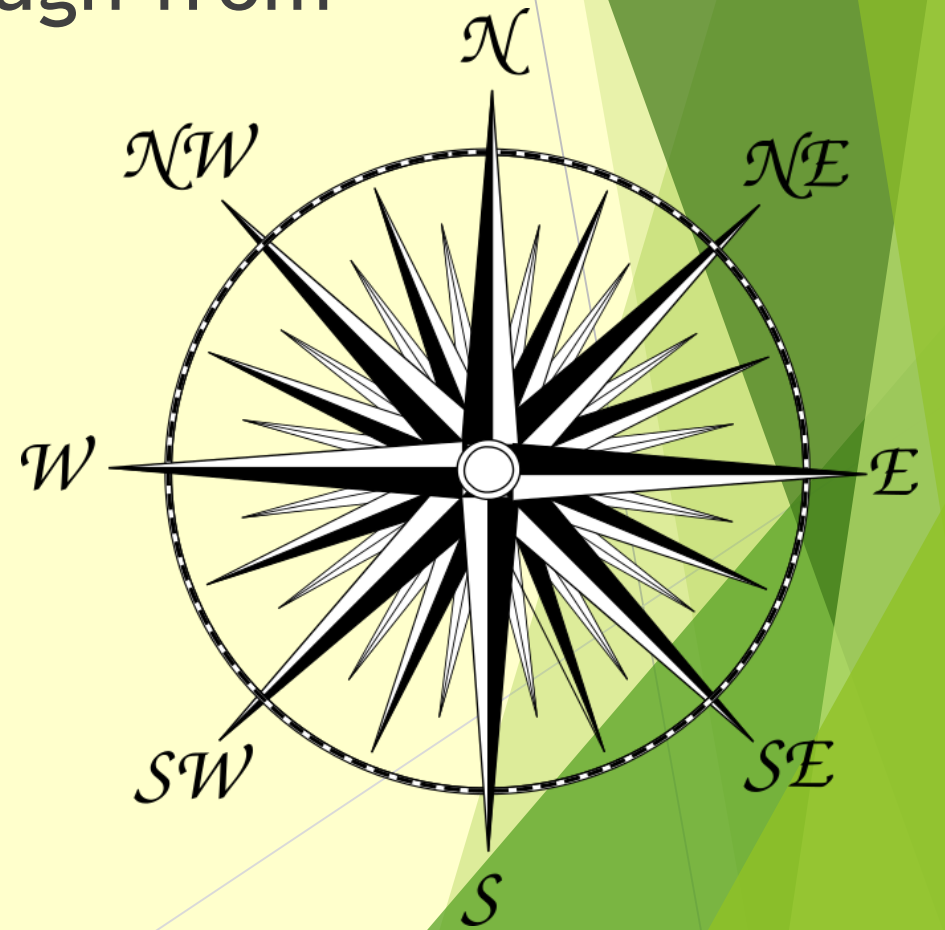
angle	degrees	fraction of a full turn
full turn		$\frac{4}{4}$ of a full turn
three right angles		
straight line		
right angle	90°	

Descriptive Doing - ANSWERS

angle	degrees	fraction of a full turn
full turn	<u>360</u> °	$\frac{4}{4}$ of a full turn
three right angles	<u>270</u> °	$\frac{3}{4}$ of a full turn
straight line	<u>180</u> °	$\frac{1}{2}$ of a full turn
right angle	90°	$\frac{1}{4}$ of a full turn

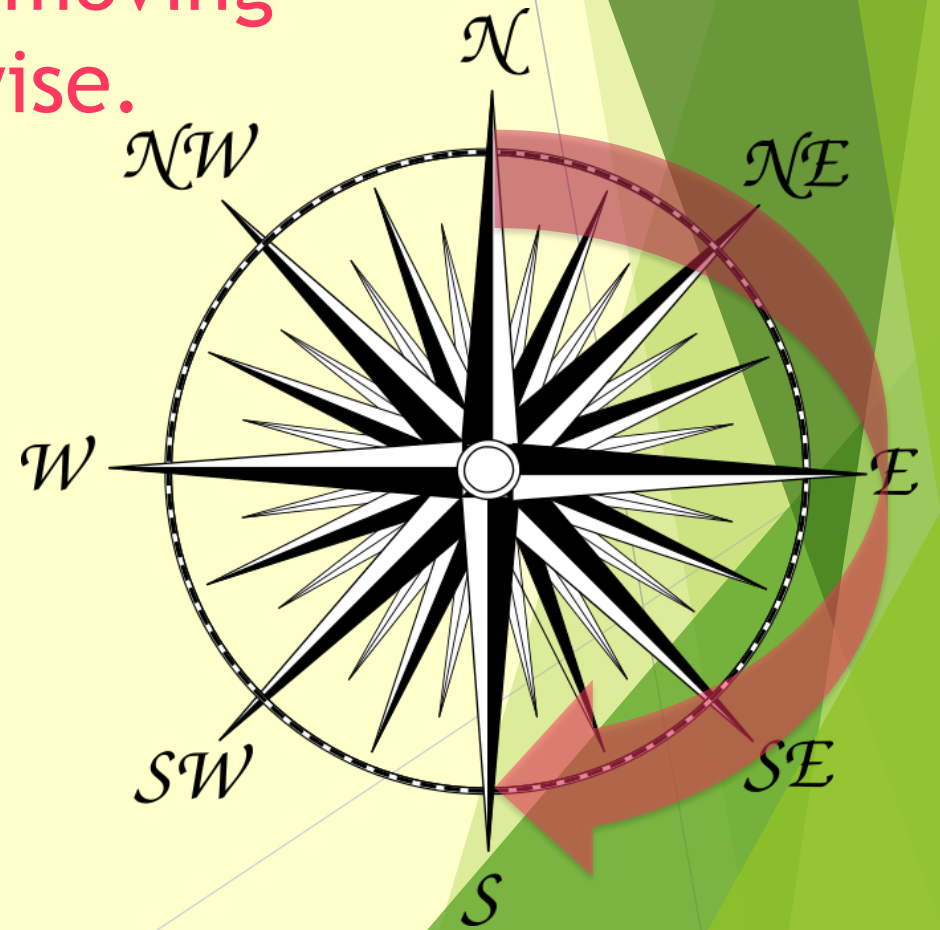
Descriptive Doing

How many degrees are passed through from North to South (turning clockwise)?



Descriptive Doing - ANSWERS

Half a turn, 180° is passed through moving from North to South turning clockwise.



Descriptive Doing

How many degrees are passed through moving from 12 o'clock to 9 o'clock turning anti-clockwise?



Descriptive Doing - ANSWERS

A quarter turn, 90° is passed through moving from 12 o'clock to 9 o'clock turning anti-clockwise.



Descriptive Doing

How many degrees are passed through from 12 o'clock to 9 o'clock (turning clockwise)?



Descriptive Doing - ANSWERS

Three quarter turns, 270° is passed through moving from 12 o'clock to 9 o'clock turning clockwise.



Reflective Teaching

If it takes 60 minutes for the minute hand to travel all the way around the clock, how many degrees does the minute hand travel in one minute?

Explain your answer.

There are 360° on a clock-face in total.

There are 60 minutes in an hour.

$$360^\circ \div 60 = 6^\circ.$$

Each minute in total is a 6° turn of the arm.



Reflective Doing

If it takes 60 minutes for the minute hand to travel all the way around the clock, how many degrees does the minute hand travel in two minutes?

Explain your answer.



Reflective Doing - ANSWERS

There are 360° on a clock-face in total.

There are 60 minutes in one hour.

$$360^\circ \div 60 = 6^\circ$$

$$2 \times 6^\circ = 12^\circ$$

Therefore, 2 minutes is a 12° turn of the arm.



Reflective Doing

If it takes 60 minutes for the minute hand to travel all the way around the clock, how many degrees does the minute hand travel in:

- (a) 7 minutes?
- (b) 12 minutes?
- (c) 17 minutes?
- (d) 21 minutes?
- (e) 37 minutes?
- (f) 53 minutes?



Reflective Doing - ANSWERS

- (a) 7 minutes? (42°)
- (b) 12 minutes? (72°)
- (c) 17 minutes? (102°)
- (d) 21 minutes? (126°)
- (e) 37 minutes? (222°)
- (f) 53 minutes? (318°)



Reflective Doing

Are the following statements always, sometimes or never true?

- a) There are 90° between 12 o'clock and 3 o'clock.
- b) There are 180° between East and West.
- c) There are 90° between 6 o'clock and 12 o'clock.

Reflective Doing - ANSWERS

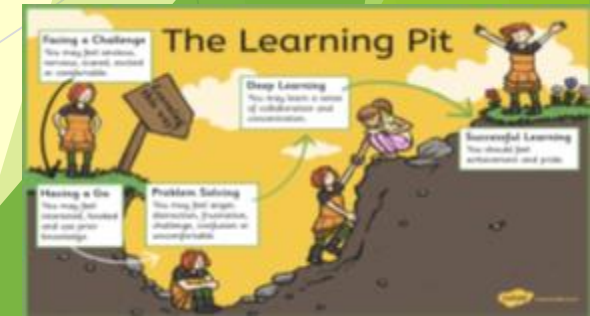
- a) There are 90° between 12 o'clock and 3 o'clock.
Sometimes - going clockwise, 90° , but 270° going anti-clockwise.
- b) There are 180° between East and West.
Always - going clockwise, 180° , and 180° going anti-clockwise.
- c) There are 90° between 6 o'clock and 12 o'clock.
Never - going clockwise, 180° , and 180° going anti-clockwise.

Choose your challenge

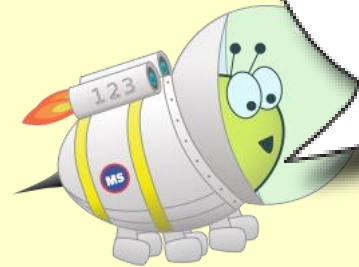
Challenges can be found on the document named 'Maths Challenges Day 4'.

Choose an appropriate challenge OR work through green, orange and red.

Answers can be found at the bottom of the document.



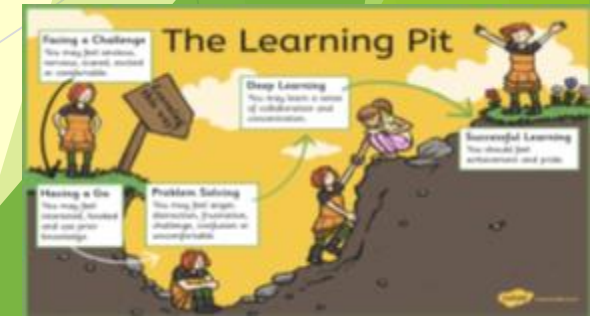
Reflection Time



Bumble said that there are 270° between North-West and South-West.
I think there are 90° .

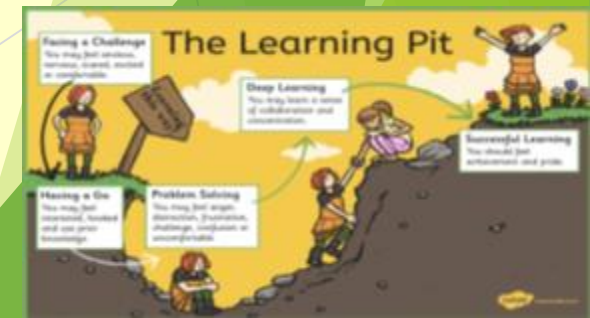
Who do you agree with?
Explain your answer.

I agree with ____ because...



Reflection Time

I agree with Bumble and Astrobee - there are 270 degrees between North-West and South-West going clockwise and 90 degrees going anti-clockwise.

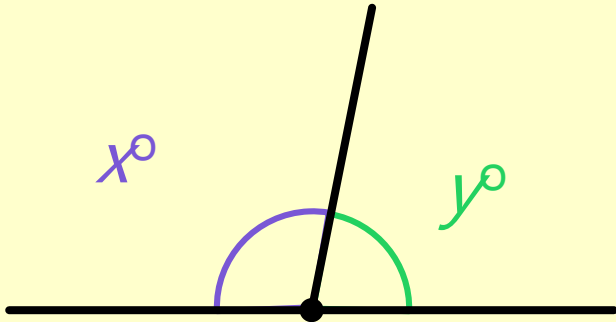


Properties of Shape

Day 5

Starter

Use your knowledge of angles facts to complete the statements below:



$$\underline{\hspace{2cm}} - x^\circ = y^\circ$$

$$x^\circ + y^\circ = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} - y^\circ = x^\circ$$

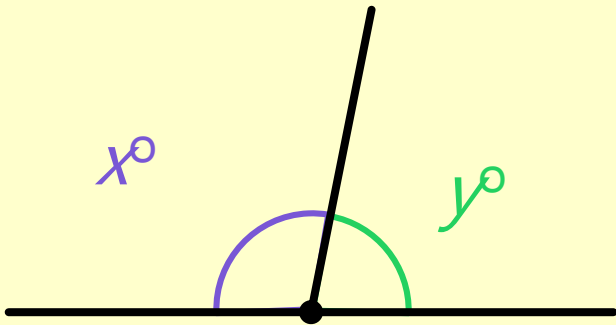
$$y^\circ + x^\circ = \underline{\hspace{2cm}}$$

Explain your choices.

What angle is
a straight
line?

Starter - ANSWERS

The missing figure is 180° as it is the total angle for a straight line. So, to find the value of x , you would need to subtract y from 180° and so on...



$$180^\circ - x^\circ = y^\circ$$

$$x^\circ + y^\circ = 180^\circ$$

$$180^\circ - y^\circ = x^\circ$$

$$y^\circ + x^\circ = 180^\circ$$

Date: Day 5

LO: To calculate angles on a straight line and around a point.

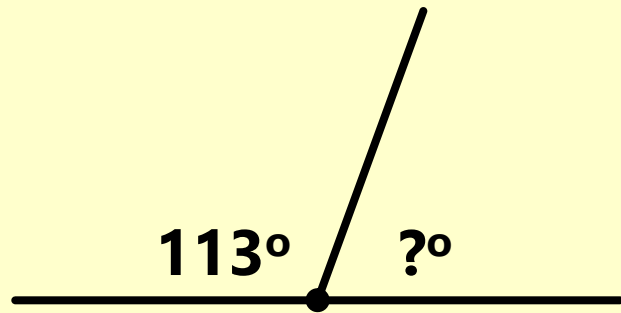
Success Criteria

I can use my knowledge of angle facts for right angles, straight lines and around a point to calculate total angles and to calculate missing angles.

I can explain my reasoning.

Descriptive Teaching

Calculate the value of the missing angle.



There are 180° on a straight line.

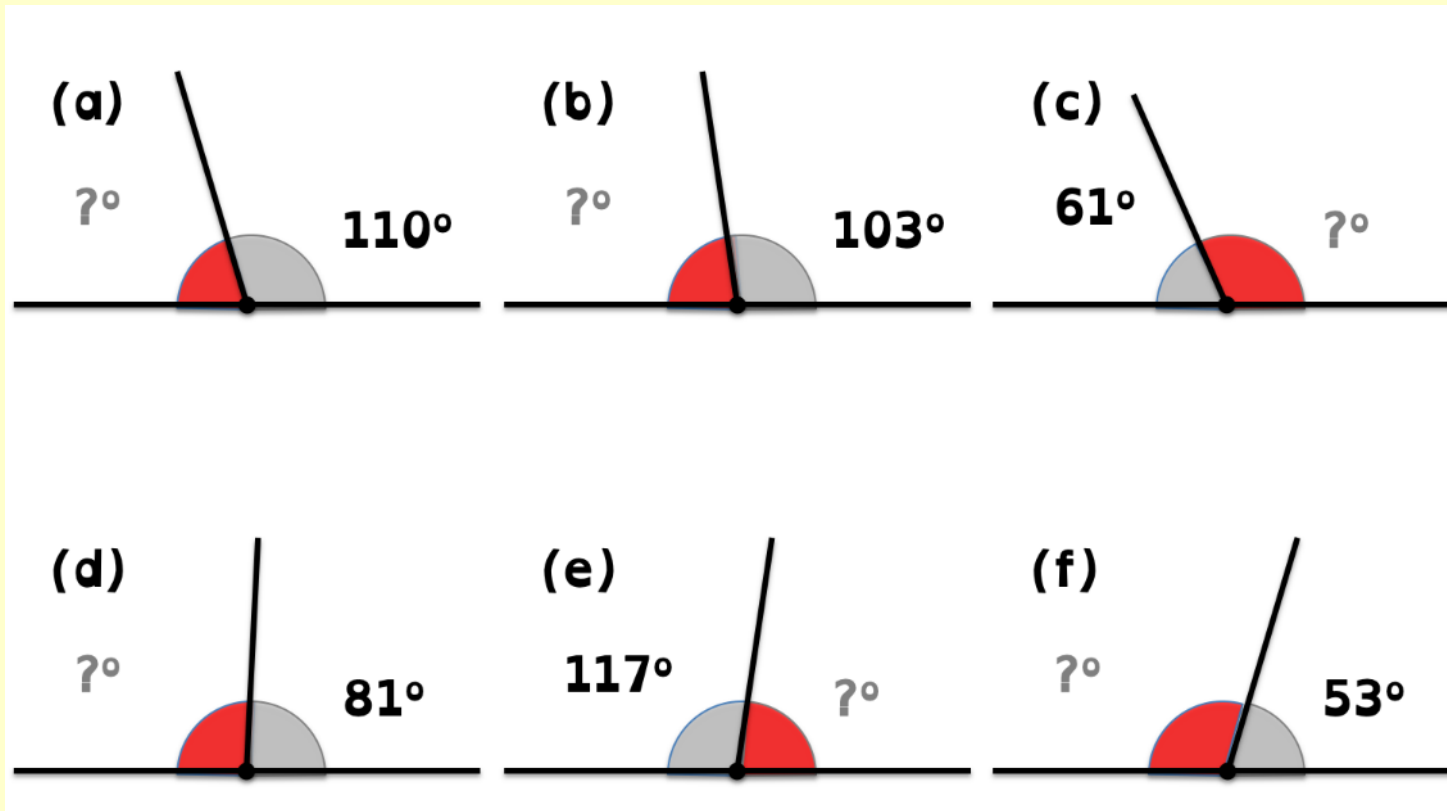
$$180^\circ - 113^\circ = 67^\circ$$

The missing angle is 67° .

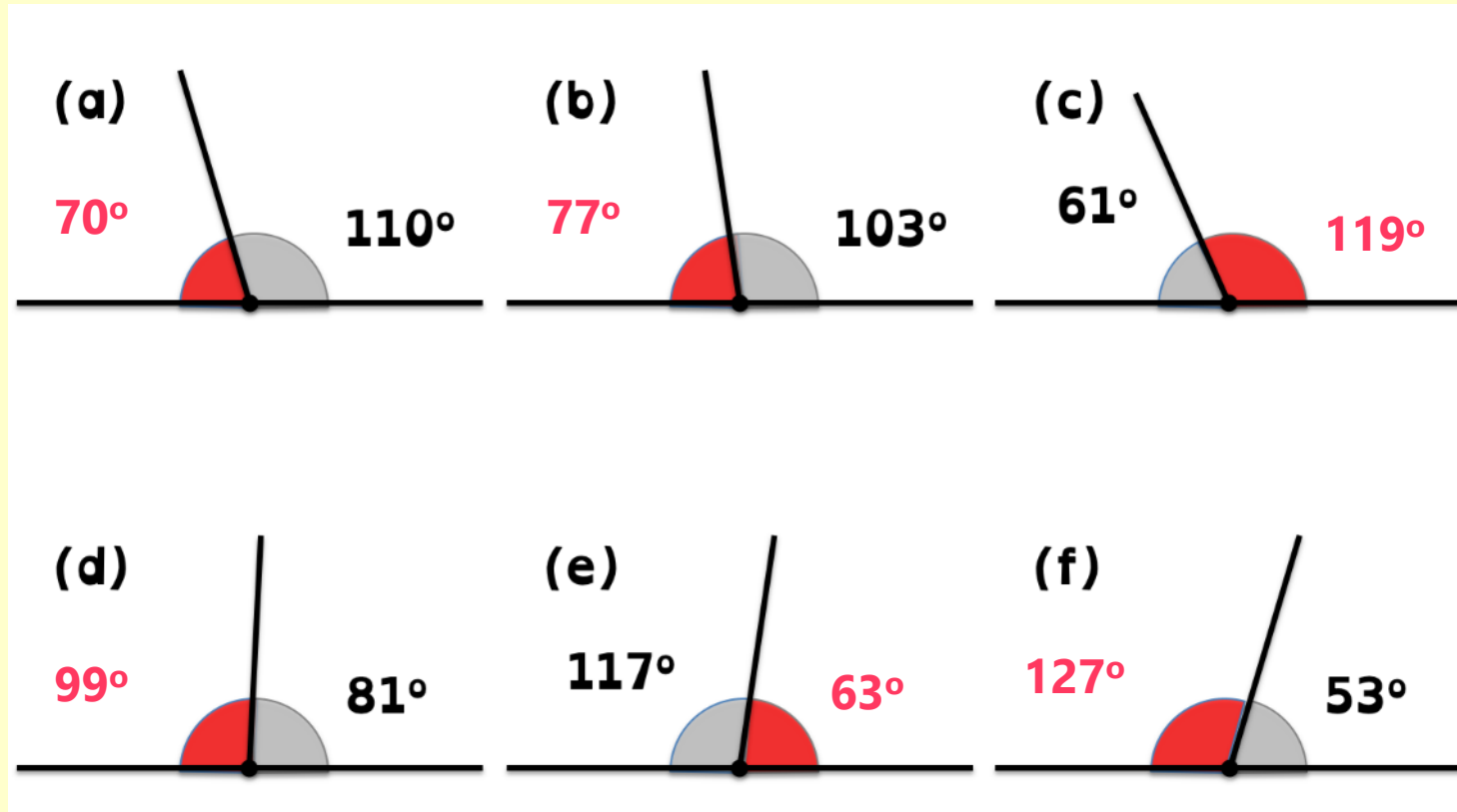
Descriptive Doing

Calculate the values of the missing angles.

You don't need a protractor for this.
Use your knowledge that a straight line is 180° .



Descriptive Doing - ANSWERS



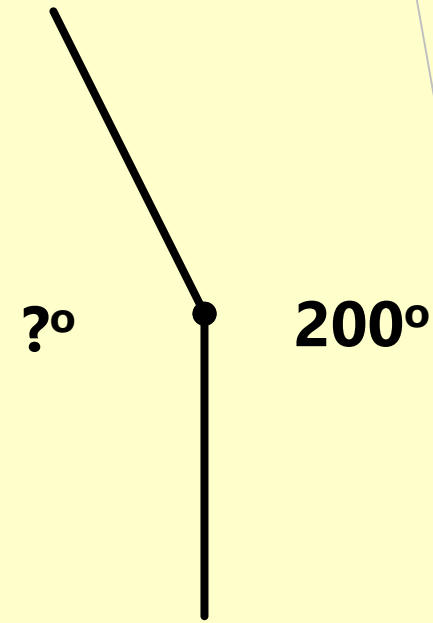
Descriptive Teaching

Calculate the value of the missing angle.

There are 360° in a full circle.

$$360^\circ - 200^\circ = 160^\circ$$

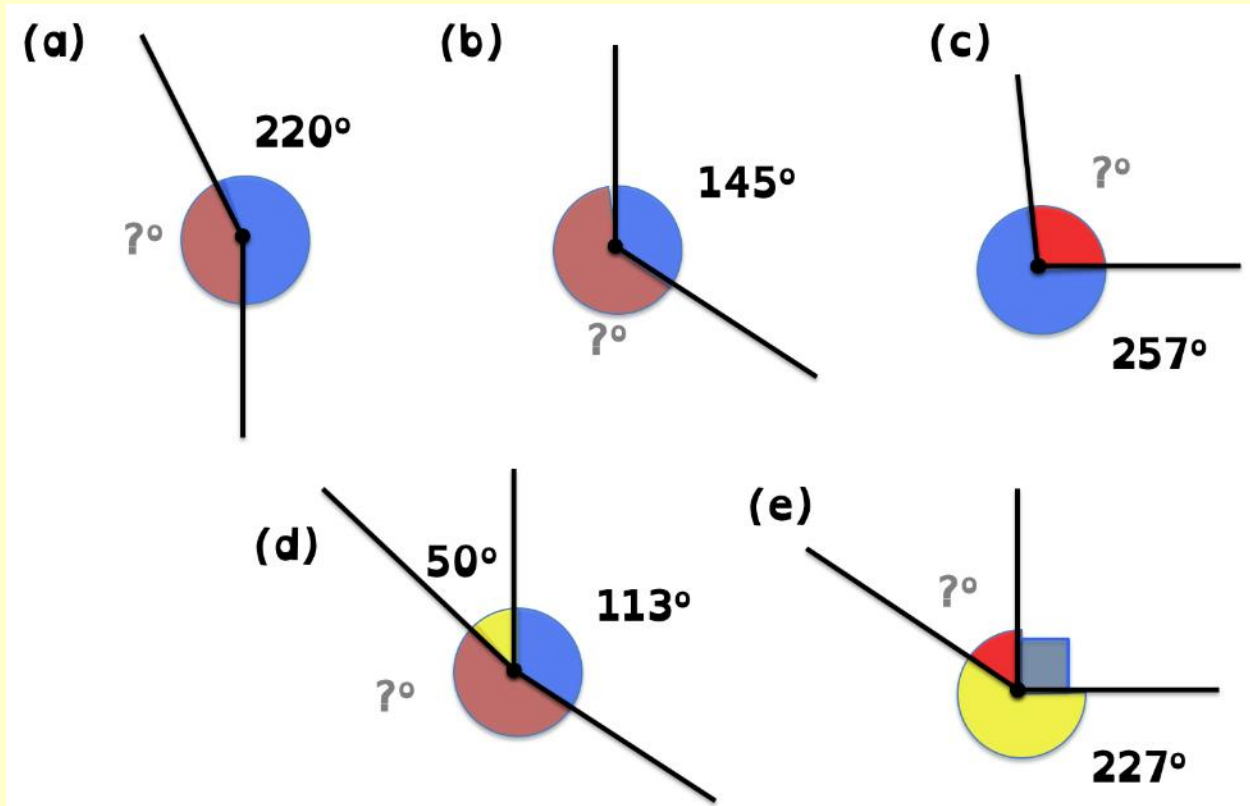
The missing angle is 160° .



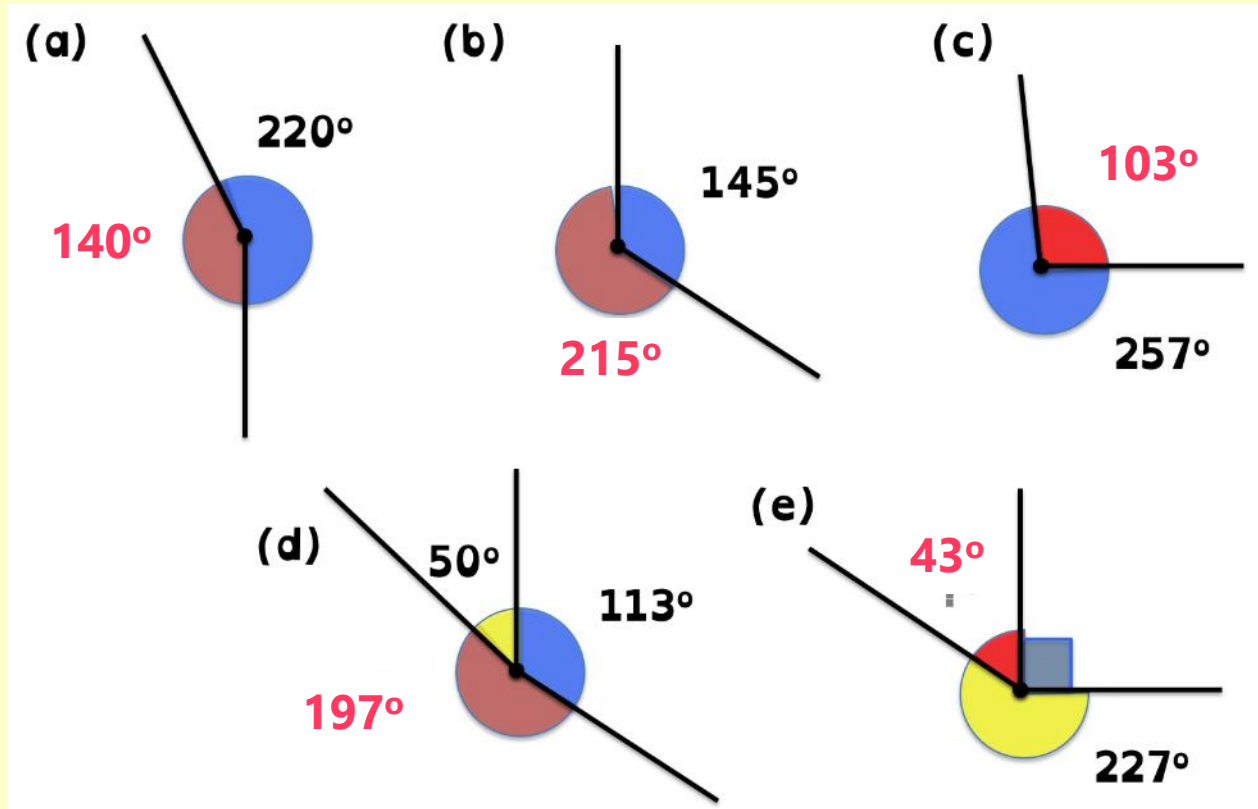
Descriptive Doing

Calculate the values of the missing angles.

You don't need a protractor for this.
Use your knowledge that a straight line is 180° .



Descriptive Doing - ANSWERS



Reflective Doing

- a) Two equal angles meet on a straight line.
What is the value of each angle?
- b) Three equal angles meet around a point.
What is the value of each angle?
- c) Five equal angles meet on a straight line.
What is the value of each angle?
- d) Thirty equal angles meet around a three quarter turn.
What is the value of each angle?

Explain your answers each time.

Reflective Doing - ANSWERS

- a) Two equal angles meet on a straight line.
Each angle is 90° or a right angle, as $180^\circ \div 2 = 90^\circ$
- b) Three equal angles meet around a point.
Each angle is 120° , as $360^\circ \div 3 = 120^\circ$
- c) Five equal angles meet on a straight line.
Each angle is 36° , as $180^\circ \div 5 = 36^\circ$
- d) Thirty equal angles meet around a three quarter turn.
Each angle is 9° , as $270^\circ \div 30 = 9^\circ$

Reflective Doing

There are four angles around a point.

One angle is 39° .

The other three angles are equal.

What is the value of the other three angles?

Explain your answer.

Reflective Doing - ANSWERS

$$360^{\circ} - 39^{\circ} = 321^{\circ}$$

$$321^{\circ} \div 3 = 107^{\circ}$$

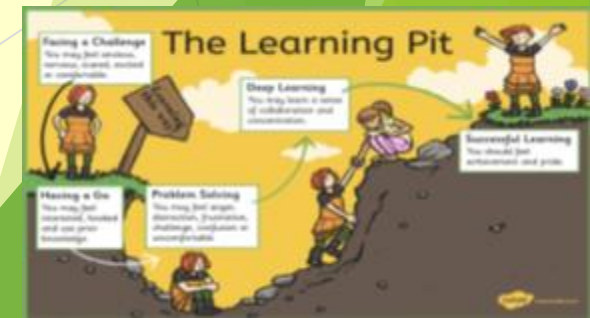
So, each of the other three angles has a value of 107° .

Choose your challenge

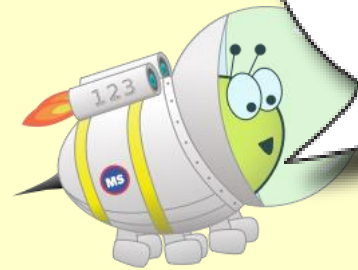
Challenges can be found on the document named 'Maths Challenges Day 5'.

Choose an appropriate challenge OR work through green, orange and red.

Answers can be found at the bottom of the document.



Reflection Time

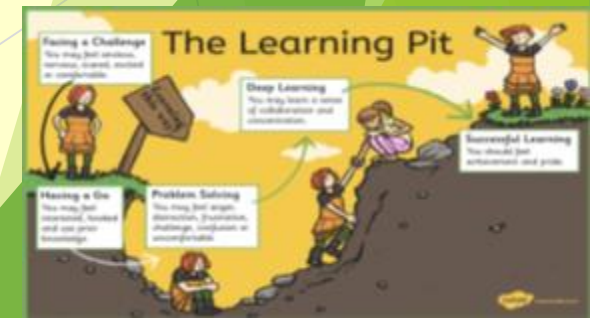


An angle around a point
is greater than an angle
on a straight line.

Astrobee's
statement is ____
true because...

Is Astrobee's statement always, sometimes or
never true?

Provide diagrams to explain your answer.



Reflection Time - ANSWERS

Astrobee's statement is only sometimes true.
For example, 200° is greater than 115° ;
however, 60° is less than 115° and 65° .

