Measurement and Geometry: Using Units of Measurement: Champion 2D Shape Drawing

Australian Curriculum
This lesson plan could be used to support the teaching and learning of the following Content Description from the Australian Curriculum.

Y5 – Measurement and Geometry
Australian Curriculum - Calculate perimeter and area of rectangles using familiar metric units (ACMMG109)

Child-Friendly Aim:	**Success Criteria:**	**Resources:**
To accurately draw a range of 2D shapes using the measurements given.	I can follow instructions to accurately draw shapes. I can draw lines accurately using a ruler. I can draw angles accurately using a protractor. I can reason about 2D shapes.	**Lesson Pack** Rulers and protractors
	Key/New Words: Protractor, ruler, length, angle, dimensions, polygon, parallel, perpendicular.	**Preparation:** Differentiated **Champion 2D Shape Drawing Activity Sheets** - one per child **Extra Challenge Activity Sheet** - as required

Prior Learning:	It will be helpful if children are confident at identifying, comparing, classifying and describing the properties of a wide range of 2D shapes.

Learning Sequence

	Reading Scales Quiz: The **Lesson Presentation** displays a range of ruler and protractor scales, which the children have to interpret and read correctly to say what length the arrow indicates.	
	Drawing 2D Shapes from Given Dimensions: Using the examples on the **Lesson Presentation**, work as a class to follow instructions to draw 2D shapes from given dimensions.	
	Champion 2D Shape Drawing: Children complete the differentiated **Champion 2D Shape Drawing Activity Sheet**, demonstrating that they can accurately draw a range of 2D shapes using the measurements given and calculate missing angles and lengths. Can children draw a range of 2D shapes? Can children calculate missing angles and lengths? Draw 2D shapes from given dimensions (to the nearest 5° and whole cm). Draw 2D shapes from given dimensions (to the nearest 5° and half cm). Draw 2D shapes from given dimensions (to the nearest 1° and mm). An **Extra Challenge Activity Sheet** is provided as an extension activity if required.	
	Shape Reasoning: The children prove or disprove the statements displayed on the **Lesson Presentation**, using their understanding of properties of shapes.	

Masterit
Computeit: Use a programming website (e.g. Scratch) to draw regular 2D shapes.
Createit: Explore how to create optical illusion art using 2D shapes.
Performit: Write and perform rhyming poetry based on the properties of 2D shapes.

Mathematics

Measurement and Geometry

Regent Studies | www.regentstudies.com

Champion 2D Shape Drawing

Aim

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Success Criteria

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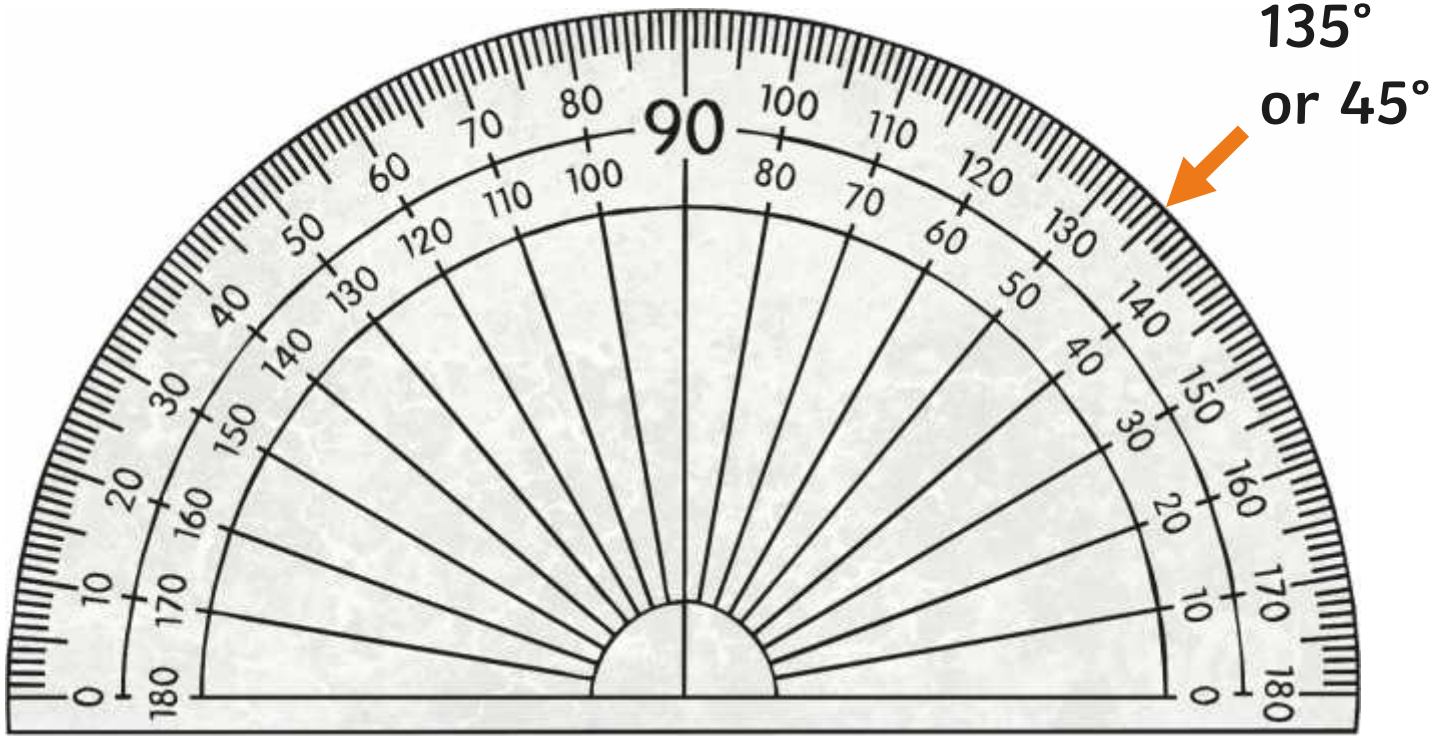
- I can draw lines accurately using a ruler.
- I can draw angles accurately using a protractor.
- I can reason about 2D shapes.

Reading Scales Quiz

What measurement does the arrow indicate?



Reading Scales Quiz

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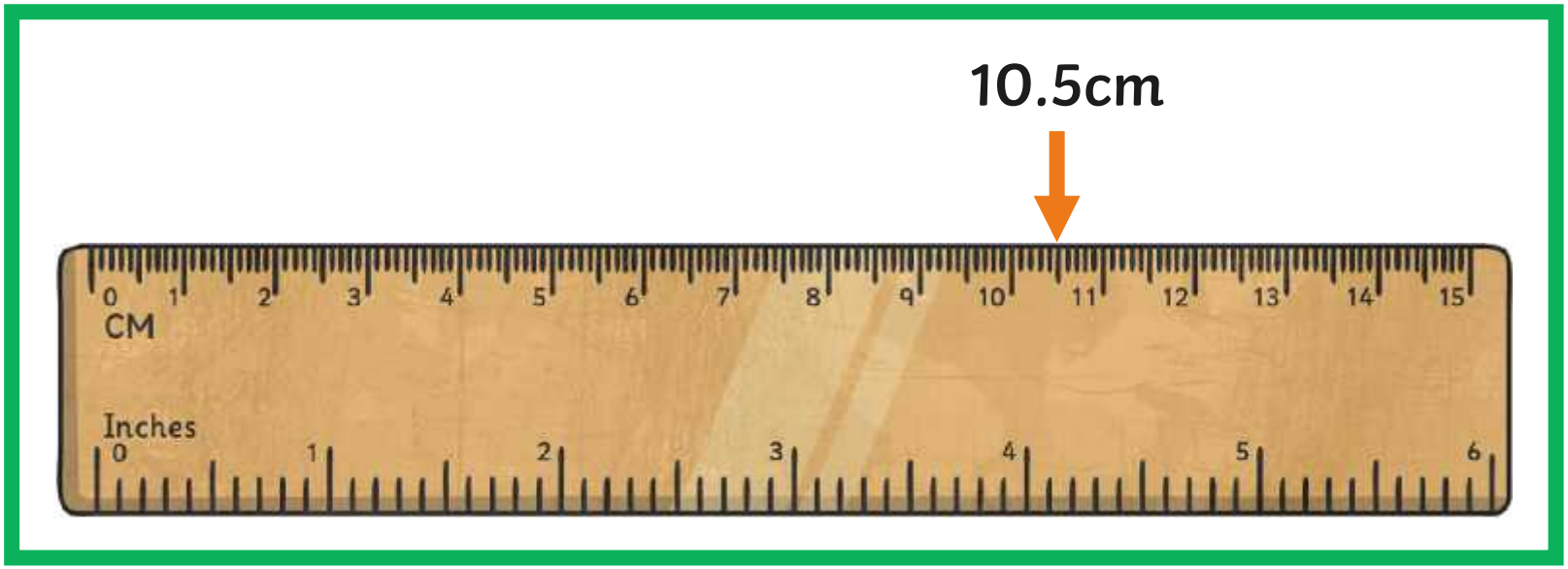
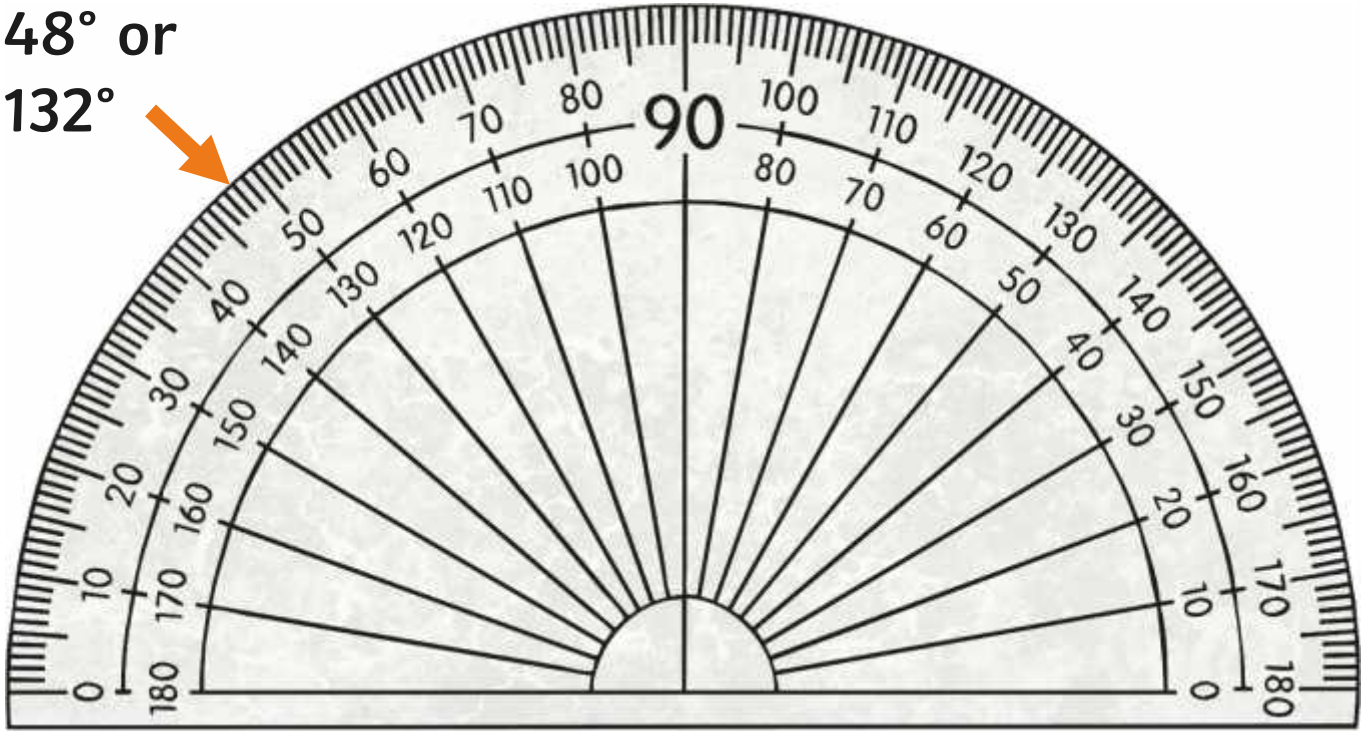


Reading Scales Quiz

What measurement does the arrow indicate?

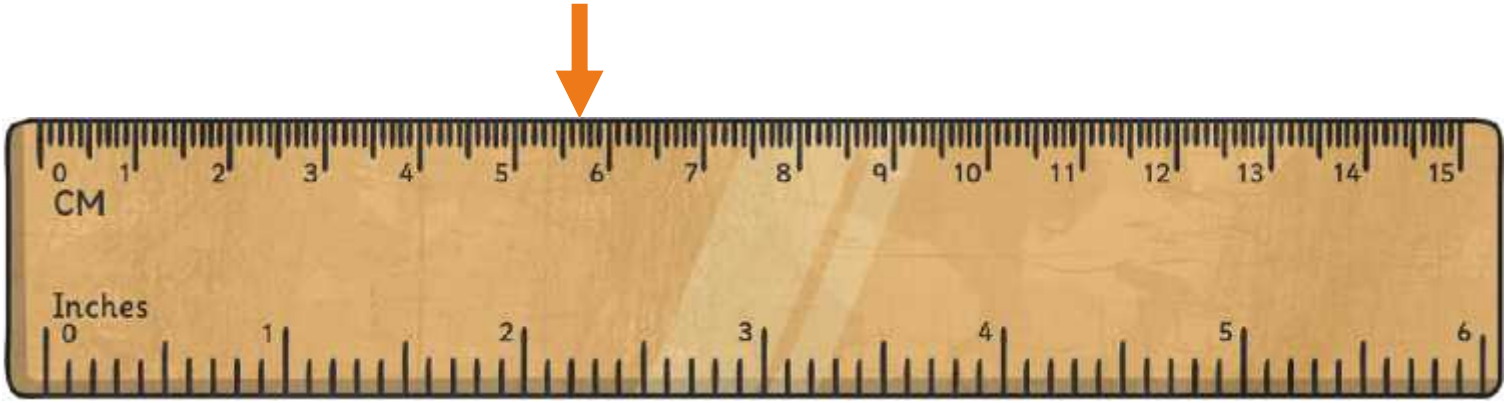
48° or
132°



Reading Scales Quiz

What measurement does the arrow indicate?

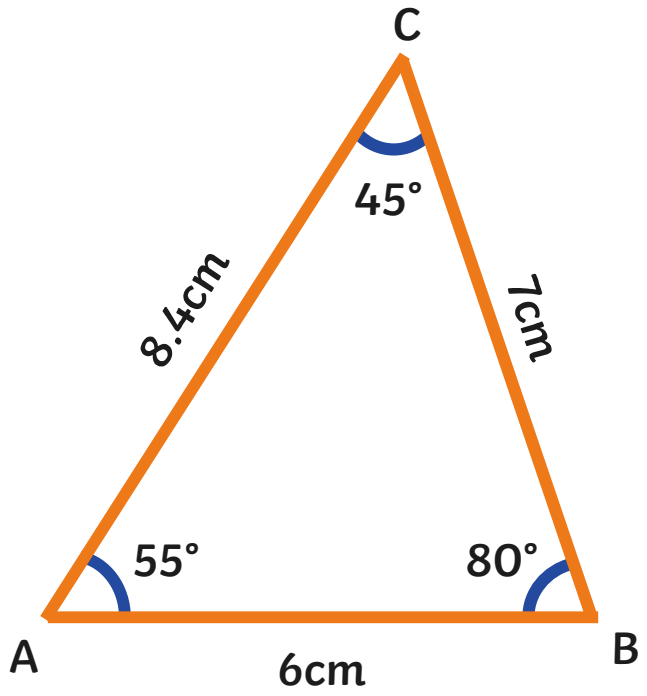
5.7cm



Drawing 2D Shapes from Given Dimensions

Follow these instructions to accurately draw this triangle:

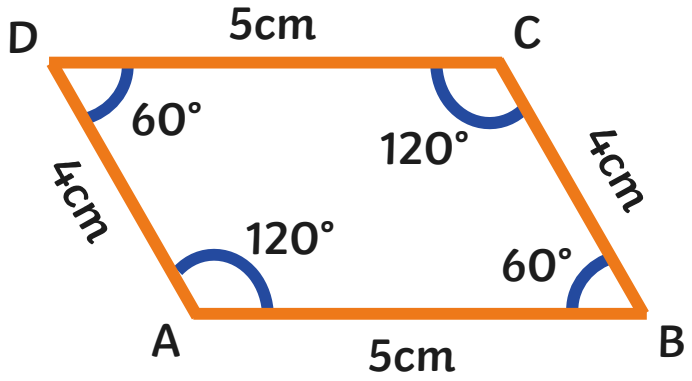
- Draw a line, AB, 6cm in length.
- At A, measure and draw an angle of 55°.
- At B, measure and draw an angle of 80°.
- Mark the point where the lines intersect C.
- Measure and label angle C.
- Measure and label lines AC and BC.



Drawing 2D Shapes from Given Dimensions

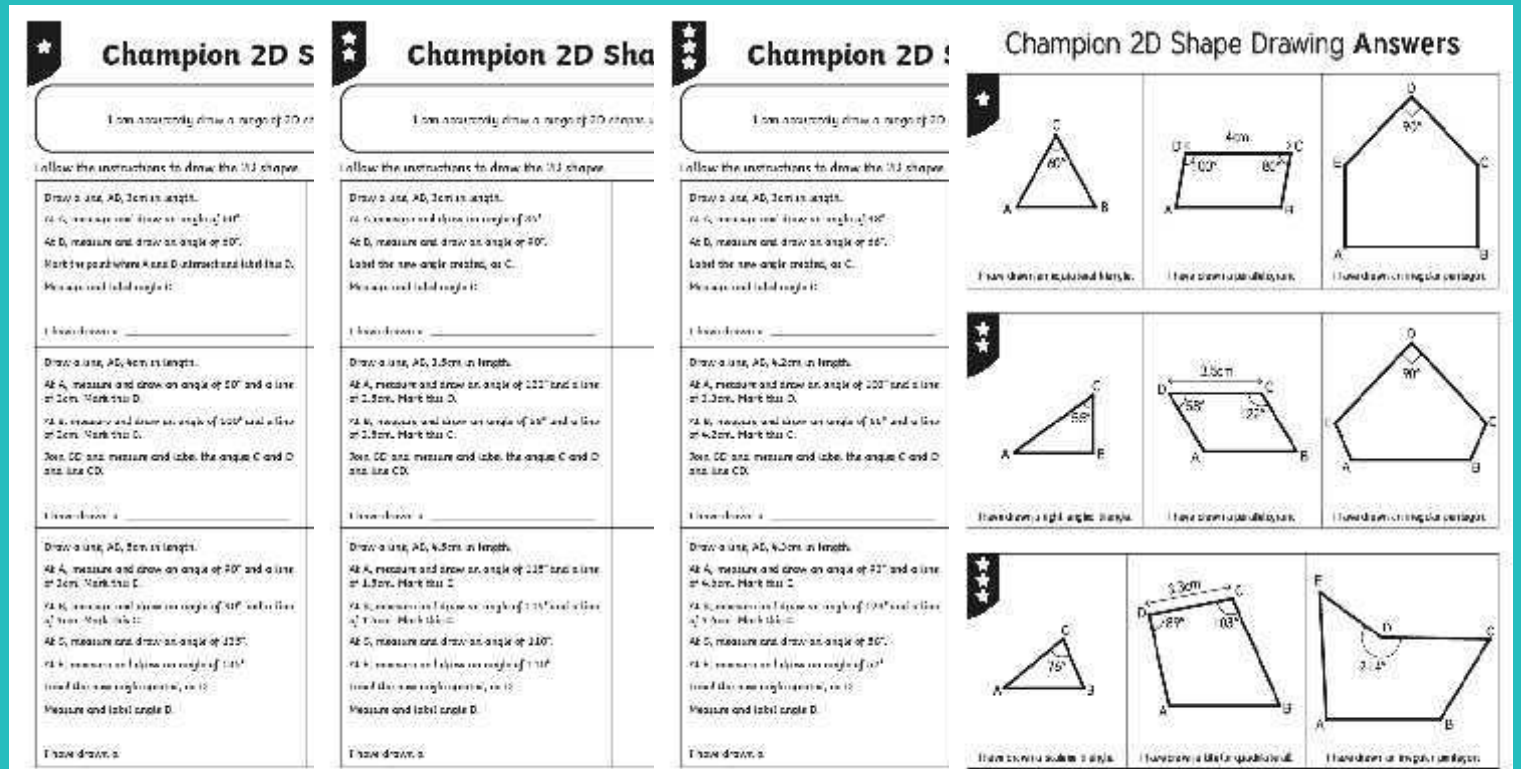
Follow these instructions to accurately draw this quadrilateral:

- Draw a line, AB, 5cm in length.
- At A, measure an angle of 120° and a line of 4cm. Mark this D.
- At B, measure an angle of 60° and a line of 4cm. Mark this C.
- Join CD. Measure and label angles C and D and line CD. What shape have we drawn?



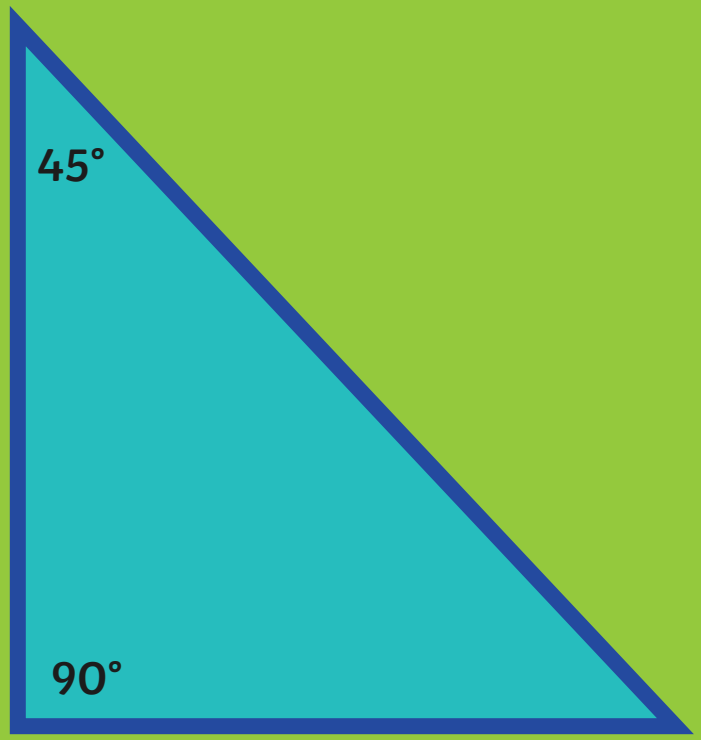
We have drawn a parallelogram.

Champion 2D Shape Drawing



Shape Reasoning

Prove or disprove these statements:

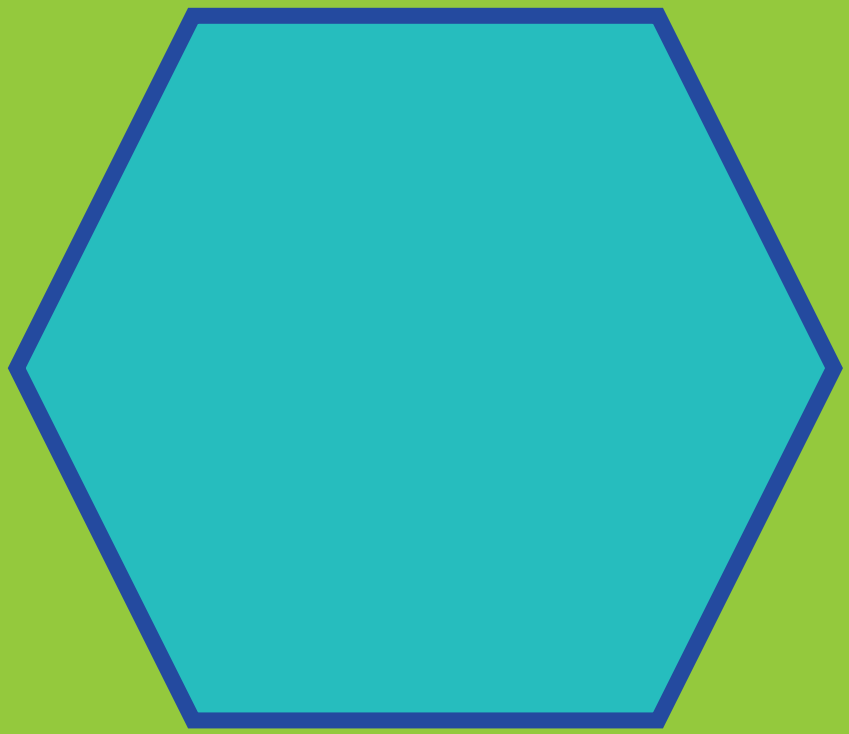


The missing angle in this triangle is greater than 45°.

False – angles in a triangle total 180°.

Shape Reasoning

Prove or disprove these statements:



False – the interior angles of a regular hexagon are 120°, which are obtuse.

The interior angles of this hexagon are acute.

Shape Reasoning

Prove or disprove these statements:

True - this hexagon does not have all sides and angles the same.

Aim

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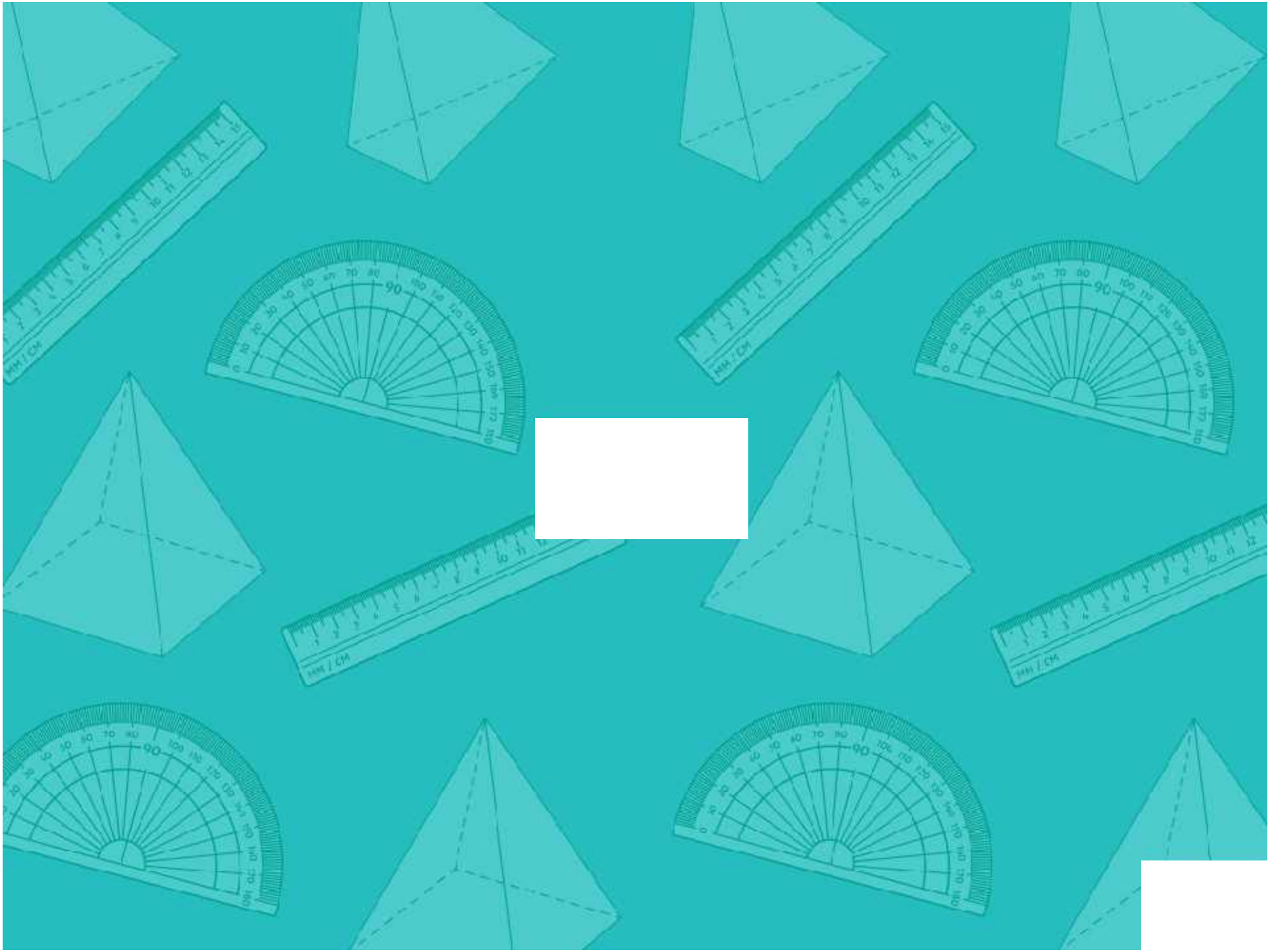

Aim: To accurately draw a range of 2D shapes using the measurements given.				Date:					
				Delivered By:			Support:		
Success Criteria	**Me**	**Friend**	**Teacher**	**T**	**PPA**	**S**	**I**	**AL**	**GP**
I can follow instructions to accurately draw shapes.				Notes/Evidence					
I can draw lines accurately using a ruler.									
I can draw angles accurately using a protractor.									
I can reason about shapes.									
Next Steps) _____) _____									

T	Teacher	**I**	Independent
PPA	Planning, Preparation and Assessment	**AL**	Adult Led
S	Supply	**GP**	Guided Practice

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S	Supply	**GP**	Guided Practice

Champion 2D Shape Drawing

To accurately draw a range of 2D shapes using the measurements given.

Follow the instructions to draw the 2D shapes:

Draw a line, AB, 3cm in length. At A, measure and draw an angle of 60°. At B, measure and draw an angle of 60°. Mark the point where A and B intersect and label this C. Measure and label angle C. I have drawn a _____	
Draw a line, AB, 4cm in length. At A, measure and draw an angle of 80° and a line of 2cm. Mark this D. At B, measure and draw an angle of 100° and a line of 2cm. Mark this C. Join CD and measure and label the angles C and D and line CD. I have drawn a _____	
Draw a line, AB, 5cm in length. At A, measure and draw an angle of 90° and a line of 3cm. Mark this E. At B, measure and draw an angle of 90° and a line of 3cm. Mark this C. At C, measure and draw an angle of 135°. At E, measure and draw an angle of 135°. Label the new angle created, as D. Measure and label angle D. I have drawn a _____	

Champion 2D Shape Drawing

To accurately draw a range of 2D shapes using the measurements given.

Follow the instructions to draw the 2D shapes:

Draw a line, AB, 3cm in length. At A measure and draw an angle of 35°. At B, measure and draw an angle of 90°. Label the new angle created, as C. Measure and label angle C. I have drawn a _____	
Draw a line, AB, 3.5cm in length. At A, measure and draw an angle of 122° and a line of 2.5cm. Mark this D. At B, measure and draw an angle of 58° and a line of 2.5cm. Mark this C. Join CD and measure and label the angles C and D and line CD. I have drawn a _____	
Draw a line, AB, 4.5cm in length. At A, measure and draw an angle of 115° and a line of 1.5cm. Mark this E. At B, measure and draw an angle of 115° and a line of 1.5cm. Mark this C. At C, measure and draw an angle of 110°. At E, measure and draw an angle of 110°. Label the new angle created, as D. Measure and label angle D. I have drawn a _____	

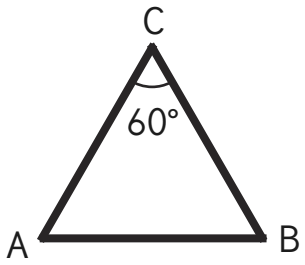
Champion 2D Shape Drawing

To accurately draw a range of 2D shapes using the measurements given.

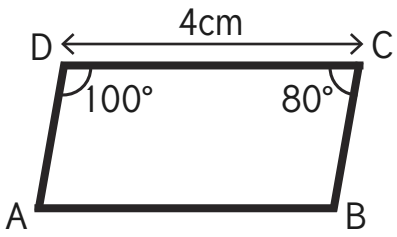
Follow the instructions to draw the 2D shapes:

Draw a line, AB, 3cm in length. At A, measure and draw an angle of 38°. At B, measure and draw an angle of 66°. Label the new angle created, as C. Measure and label angle C. I have drawn a _____	
Draw a line, AB, 4.2cm in length. At A, measure and draw an angle of 103° and a line of 3.3cm. Mark this D. At B, measure and draw an angle of 65° and a line of 4.2cm. Mark this C. Join CD and measure and label the angles C and D and line CD. I have drawn a _____	
Draw a line, AB, 4.3cm in length. At A, measure and draw an angle of 93° and a line of 4.6cm. Mark this E. At B, measure and draw an angle of 123° and a line of 3.4cm. Mark this C. At C, measure and draw an angle of 58°. At E, measure and draw an angle of 52°. Label the new angle created, as D. Measure and label angle D. I have drawn a _____	

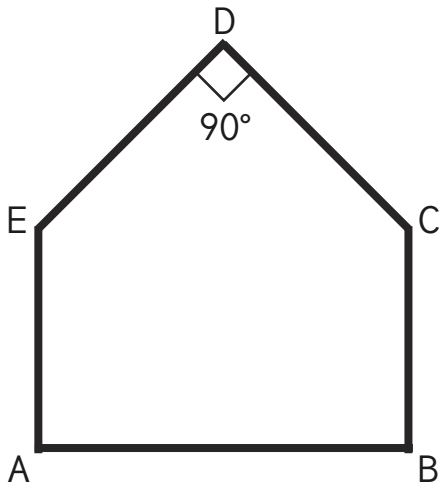
Champion 2D Shape Drawing **Answers**



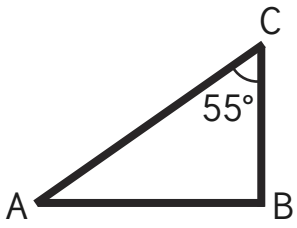
I have drawn an equilateral triangle.



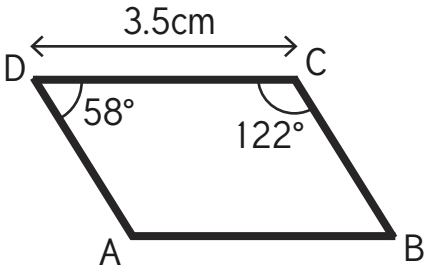
I have drawn a parallelogram.



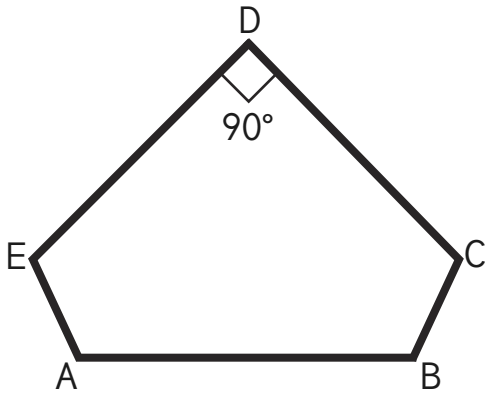
I have drawn an irregular pentagon.



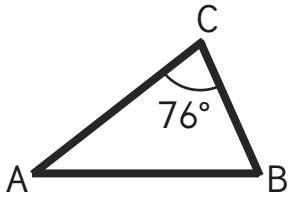
I have drawn a right-angled triangle.



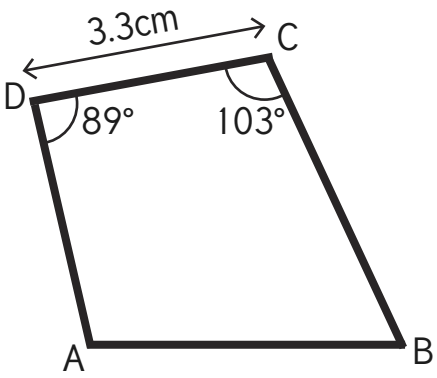
I have drawn a parallelogram.



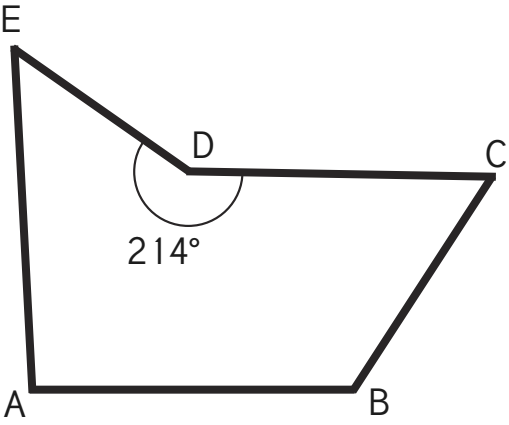
I have drawn an irregular pentagon.



I have drawn a scalene triangle.



I have drawn a kite (or quadrilateral).



I have drawn an irregular pentagon.

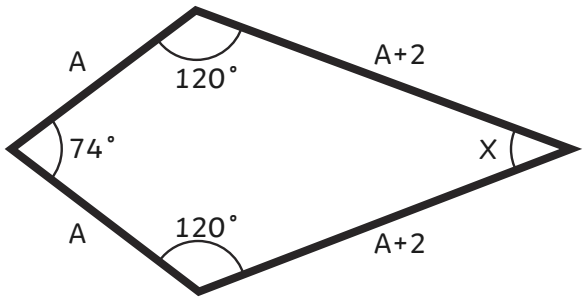
Champion 2D Shape Drawing Extra Challenge

To accurately draw a range of 2D shapes using the measurements given.

Calculate the dimensions to draw the 2D shapes:

Draw this kite accurately when A = 4cm.

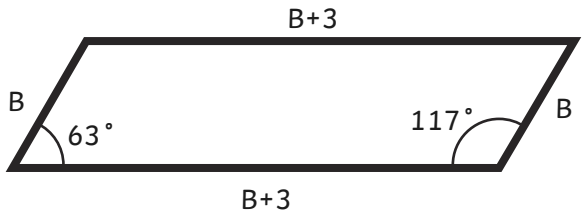
Measure and label angle x.



not drawn to scale

Draw this parallelogram when B = 1.5cm.

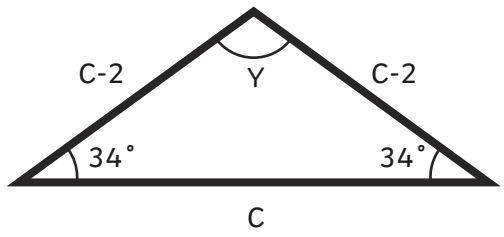
Use diagonally opposite angle facts to help you complete the drawing.



not drawn to scale

Draw this isosceles triangle when C = 5cm.

Measure and label angle Y.



not drawn to scale

Champion 2D Shape Drawing Extra Challenge **Answers**

1.	Draw this kite accurately when A = 4cm. Measure and label angle X.
Answer:	Sides of 4cm and 6cm, angle X = 46°.
2.	Draw this parallelogram when B = 1.5cm. Use diagonally opposite angle facts to help you complete the drawing.
Answer:	Sides of 1.5cm and 4.5cm.
3.	Draw this isosceles triangle when C = 5cm. Measure and label angle Y.
Answer:	Sides of 5cm and 3cm, angle Y = 112°.

Measurement and Geometry | Champion 2D Shape Drawing

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