1) Draw these shapes to scale, giving the missing measurements.

____cm

4cm

3cm
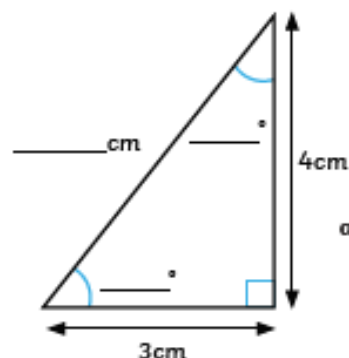
a) Right-angled scalene triangle

3cm

____cm

____cm

50°

____cm

b) Rhombus

____°

3cm

____cm

2cm

2cm

60°

5cm
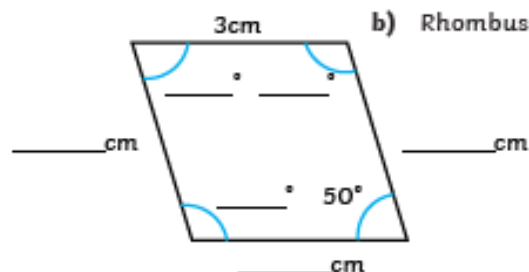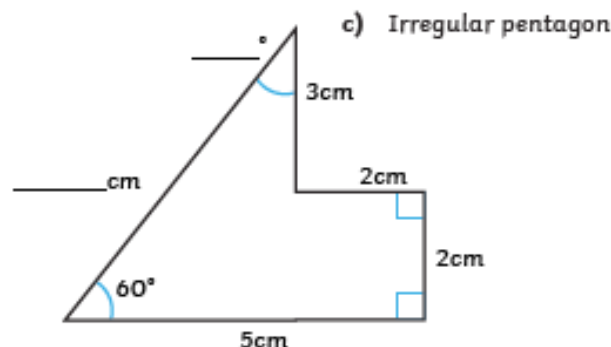
c) Irregular pentagon

2) Ola has some questions about how to draw these shapes. Answer Ola's question then accurately draw each shape on squared paper.

What will each pair of sides measure?

a) Rectangle with an area of $15cm^2$

What will each of the remaining equal, opposite sides measure?

b) Parallelogram with a perimeter of 18cm and two equal, opposite sides measuring 4cm each
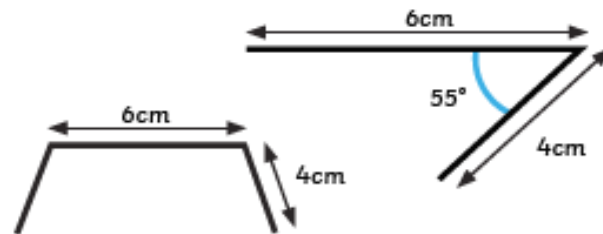
What will each angle measure?

c) Equilateral triangle with side lengths of 4cm

1) a) Tick the drawing which can be completed to make a parallelogram? How do you know?

6cm

55°

4cm

6cm

4cm

b) Complete the drawing of the parallelogram accurately and to scale and label the remaining angles.
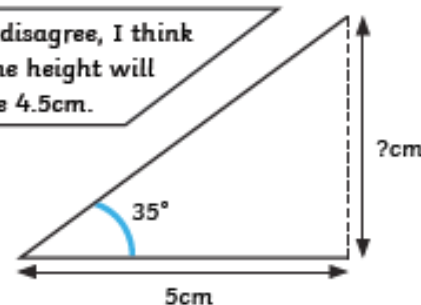
2) Two friends are drawing this triangle in order to find the length of the missing side.

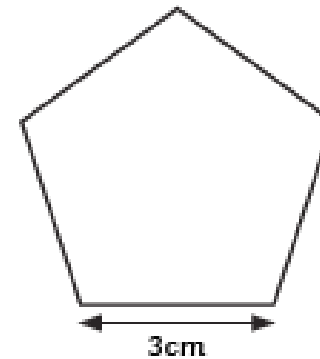Olivia

The height of the missing side is 3.5cm.

Bisma

I disagree, I think the height will be 4.5cm.

?cm

35°

5cm

Who is correct? Draw the shape to scale, to check your answer. Label the sides and angles.

**3)** Max has written instructions for drawing a regular pentagon:

3cm

- Firstly, draw the 3cm line for the base.

- Next, draw the four remaining 3cm lines for the sides.

- Finally, mark and draw all of the 108° angles inside the shape.

Do you agree with the order of Max's instructions? Explain how you would change Max's instructions then draw Max's regular pentagon accurately and to scale.

1) a) Aron has started to draw an isosceles triangle. What mistake has Aron made with his drawing?

70° 75°

3cm
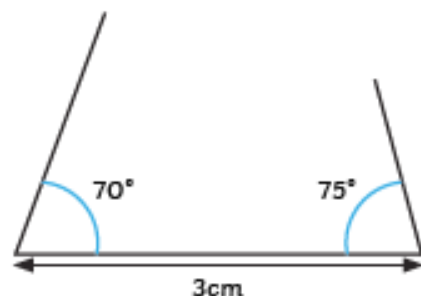
b) Help Aron by accurately drawing an isosceles triangle with the same length base.

2) What shape am I?

I am a regular 2D shape.
I have equal side lengths of 2cm.
The sum of my interior angles is 720°.
I have equal angles of 120°.

Now draw this shape accurately and to scale.

3) a) Look at these scale models of new climbing frames for the playground.
Scale: 1m = 1cm
On plain paper, make accurate scale drawings of the models, in order to work out the missing measurements.

_____m

4m   _____°   _____°   5m

80°   55°

7m

_____m   _____m

140°   _____°   140°

2m   2m

100°   100°

135°   135°
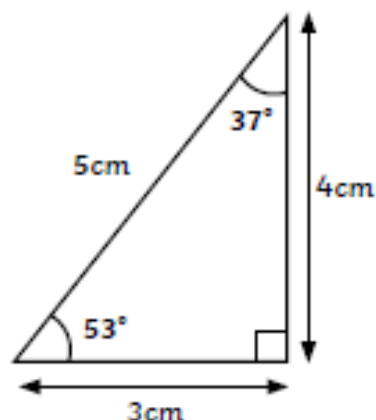
2m   2m

3m
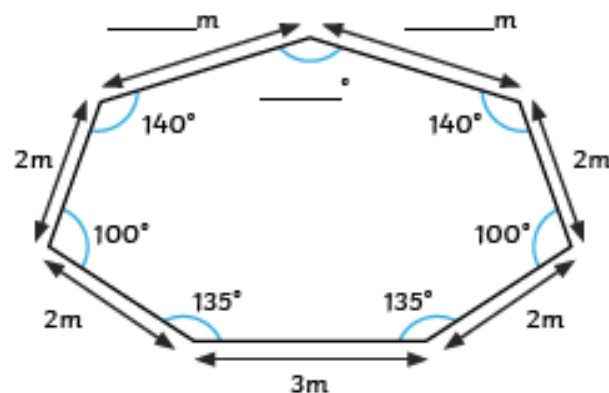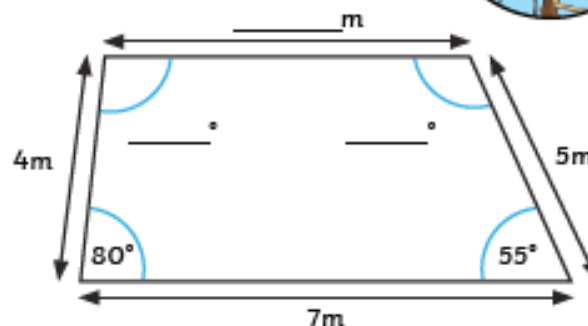
b) Now create your own scale model drawing of a piece of playground equipment. Make sure you label the angle sizes and lengths of each side.
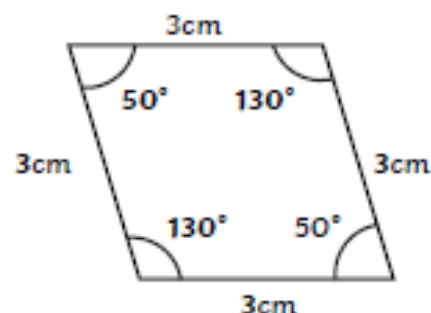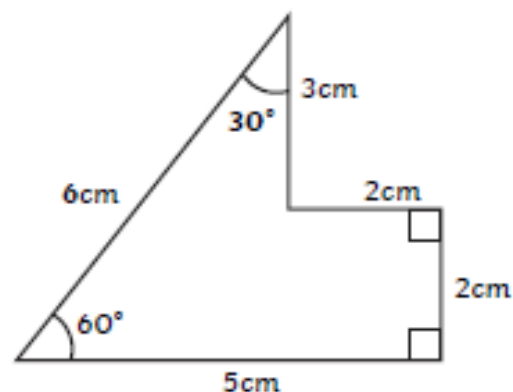
ANSWERS

1) **a)** The longest side is 5cm. The angles should add up to 90° and are approximately 53° and 37°.

**b)** All sides are 3cm. The angles are exactly 130° and 50°.

c) The longest side is 6cm. The angles should add up to 90° and are approximately 30° and 60°.

2) **a)** The sides could measure 1cm and 15cm or 3cm and 5cm. Accept drawing of any rectangle with an area of 15cm^2.
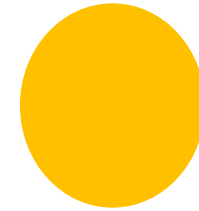
b) The remaining sides will measure 5cm. Accept drawing of a parallelogram with two sides measuring 4cm and two sides measuring 5cm.
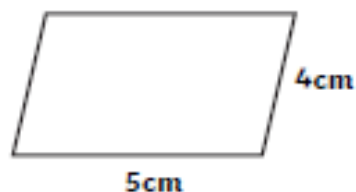
c) Each angle will measure 60°. Accept an equilateral triangle with angles of 60° (allowing for slight inaccuracies in drawing) and side lengths of 4cm.
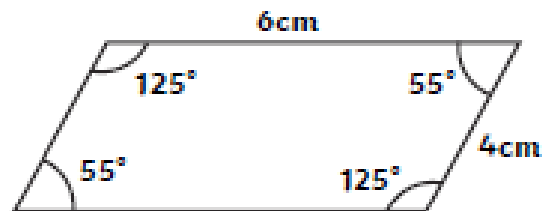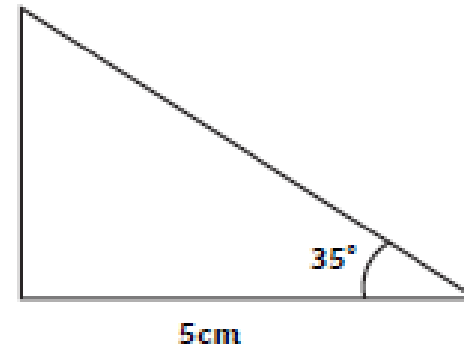
1) a) The drawing on the right can be completed to make a parallelogram. The drawing on the left cannot be completed to make a parallelogram because the two sides are not parallel.

b)

6cm

125°   55°

55°   125°   4cm

2) Olivia is correct. The length of the missing side is 3.5cm. Children should also have accurately drawn and labelled the right-angled triangle.

3.5cm

35°

5cm

3) Max's instructions are not in the correct order. After drawing the base, he needs to measure and mark one angle then draw the next side and repeat. If he draws all of the sides first, he will not know if he has drawn the angles inside the shape accurately and although he may be able to draw a pentagon this way it will not be a regular pentagon.

Drawing of pentagon should have 5 equal angles of 108° (allow for slight inaccuracies in drawing) and all sides should measure 3cm.
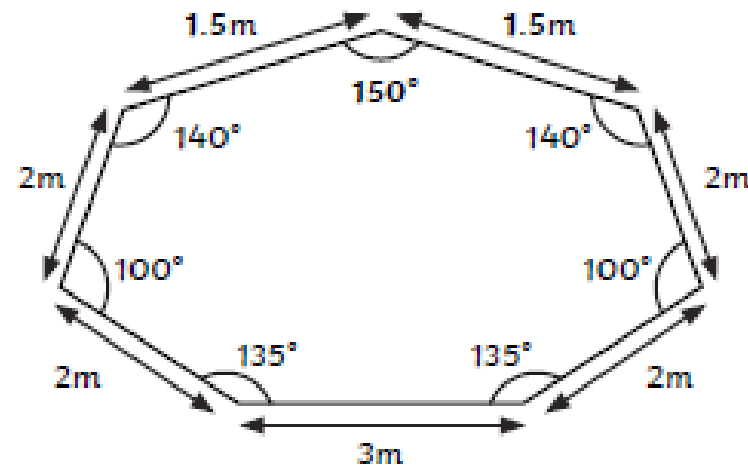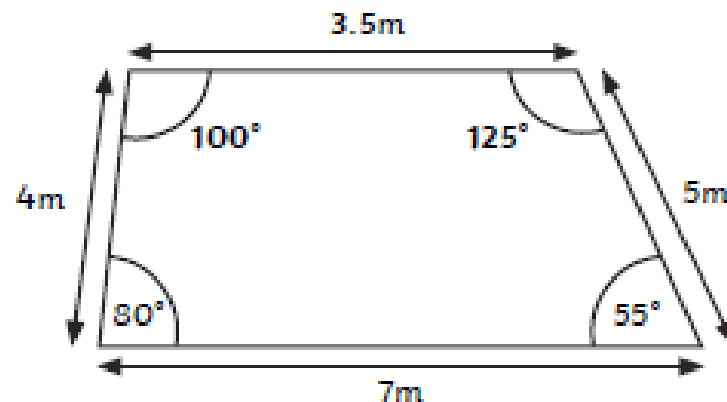
108°

3cm
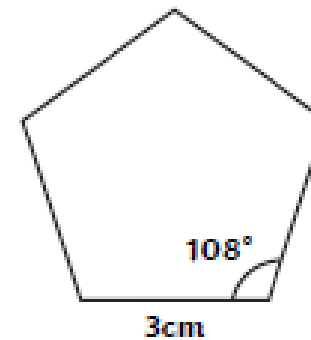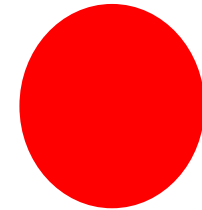
1) a) Aron's triangle should have two equal angles at the base. If Aron was to continue drawing, he would not create a scalene triangle as all the angles would be different.

   b) Accept any drawing of an isosceles triangle with two equal sides, two equal angles at the base and a base length of 5cm.

2) I am a regular hexagon.
   Accept drawing of a regular hexagon with equal sides of 2cm each and equal angles of approximately 120°.

3) a) Children should have drawn and labelled these shapes. Angles in a quadrilateral add to 360 degrees. Angles in a heptagon add to 900 degrees. Allow slight inaccuracies in drawing and approximations in angle size.

   b) Answers will vary.