Please make sure that you print this resource at 100% so that all measurements are correct.
To do this, follow the relevant steps below.

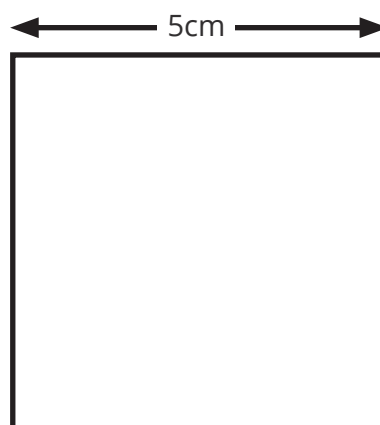### Adobe Reader or Adobe Acrobat

- Adobe Reader is a free PDF viewer, from Adobe. To install a copy of Adobe Reader, go to https://get.adobe.com/uk/reader/.

- Once Adobe Reader is installed, open your PDF.

- Go to File>Print.

- Under 'Page Sizing & Handling', select 'Size'.

- From here, make sure that 'Actual Size' is selected.

- Print this page as a test, making sure that the shape below is the correct size once printed.

- If the test print is correct, print your PDF.

Foxit Reader

- Go to File>Print.

- Set the 'Scaling' to 'None'.

- Print this page as a test, making sure that the shape below is the correct size once printed.

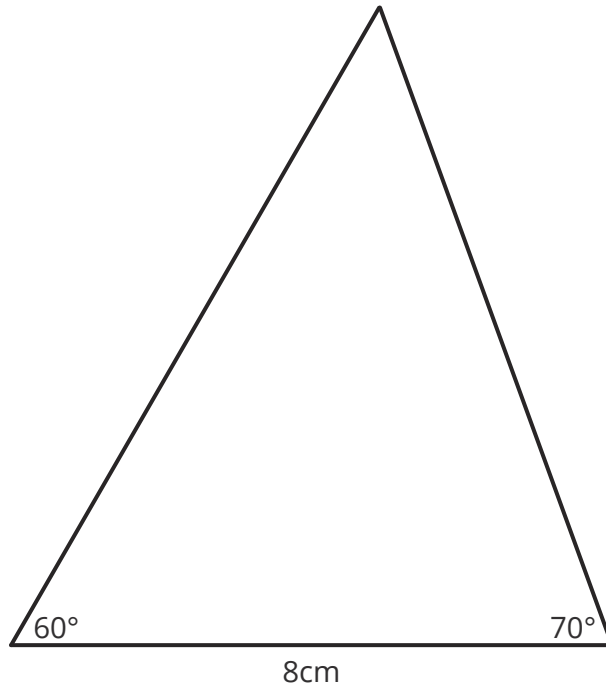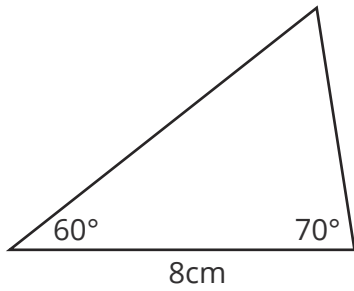- If the test print is correct, print your PDF.

Web Browser

- If printing from a web browser, such as Chrome, Firefox or Microsoft Edge make sure that your printer is set to print at 100%, either by unticking 'Fit to Page' or selecting 'Actual Size'.

- Print this page as a test, making sure that the shape below is the correct size once printed.

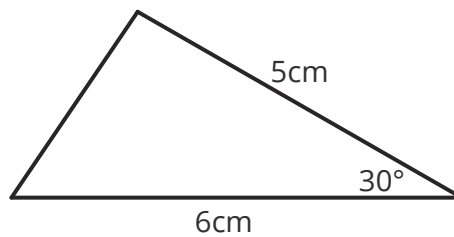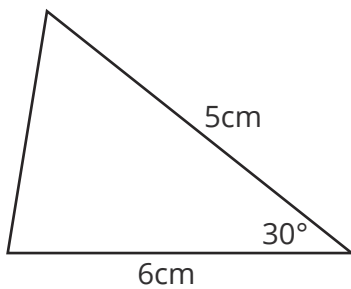- If the test print is correct, print your PDF.

5cm

Your turn

Accurately draw each of the triangles shown. Leave any construction marks visible.
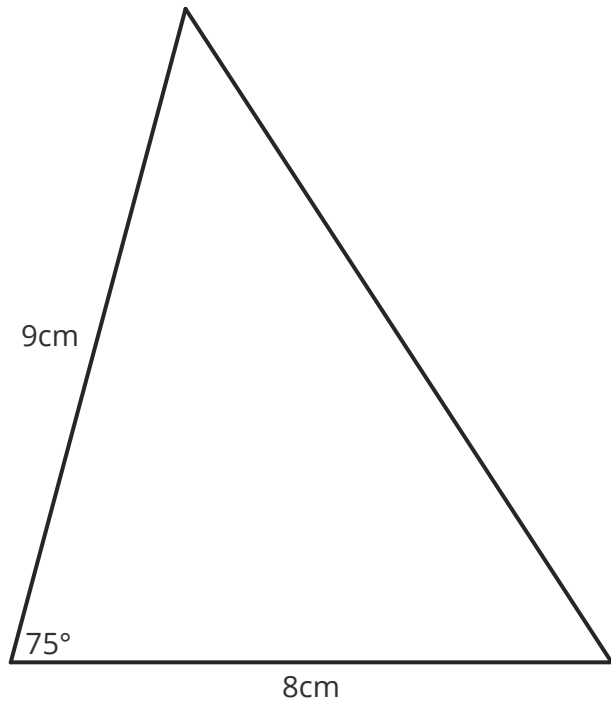
1.

60° 70°
8cm

60° 70°
8cm

2.

5cm
30°
6cm

5cm
30°
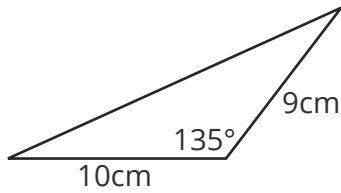6cm

3.

9cm

75°

8cm

9cm

75°

8cm

4.

9cm

135°

10cm

9cm

135°

10cm
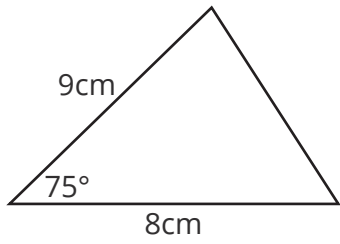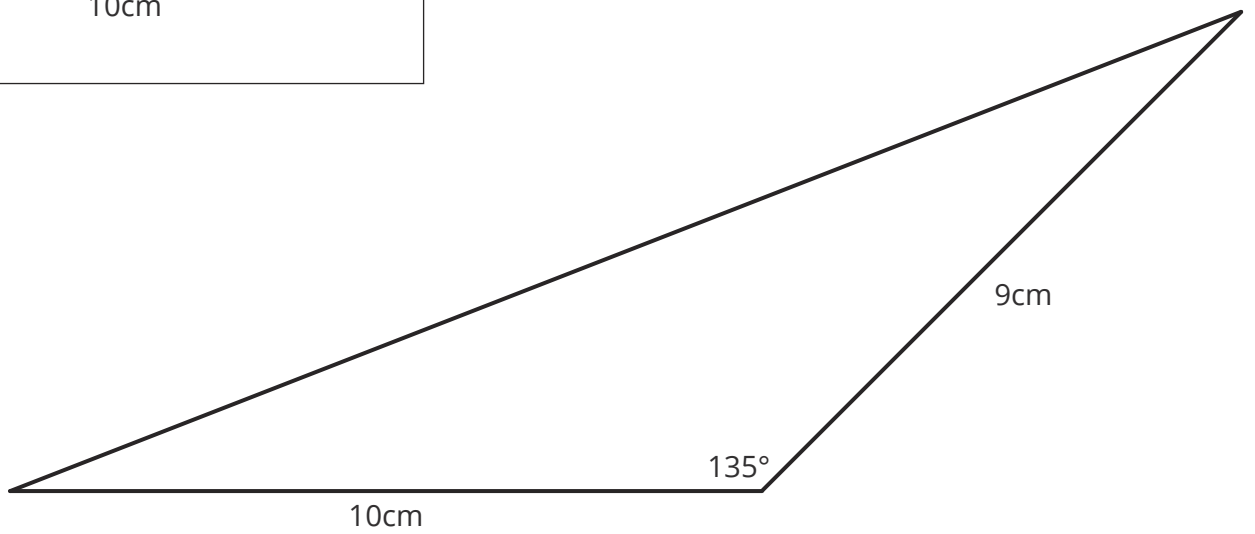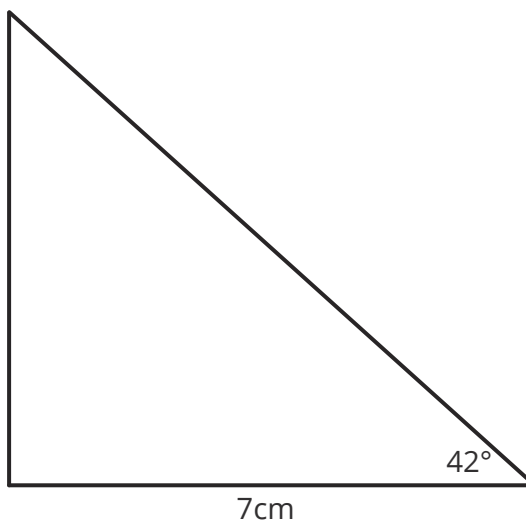
5.
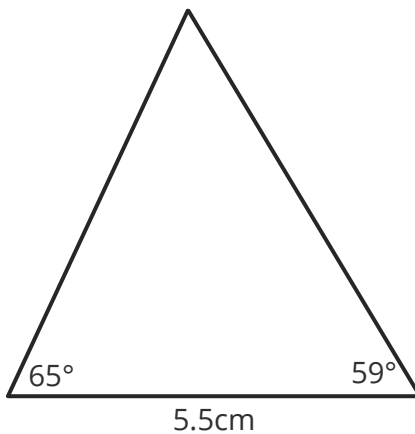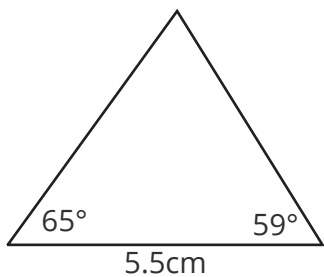
6.

Challenge

Accurately draw the sector below.

4cm

135°

4cm

4cm

135°

4cm
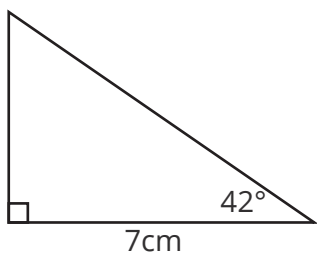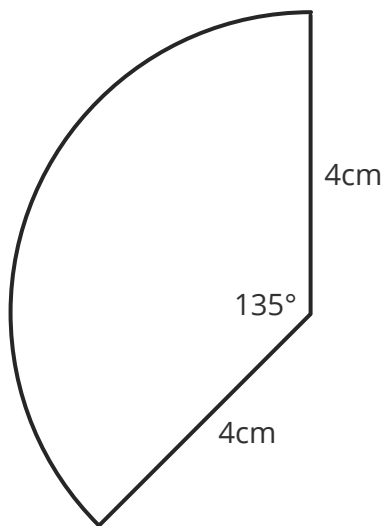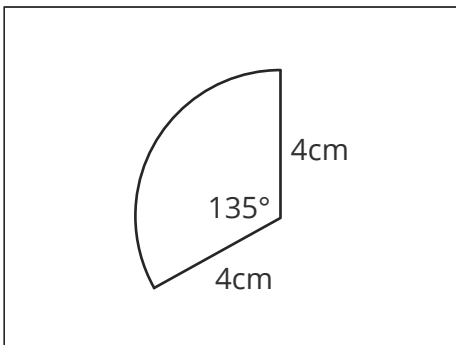
You should set a pair of compasses at 4cm to create the arc.

Constructing Triangles (with a protractor)

Prior Knowledge:

- How to draw and measure an angle using a protractor.

- Be able to label the sides and angles of triangles.

How you construct a triangle will depend on the information you are given about the triangle. When you are given measurements which include angles, you must use the following equipment:
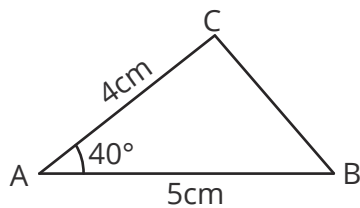
- a ruler

- a pencil

- a protractor

Example 1

Construct the triangle ABC where AB = 5cm, AC = 4cm and angle BAC = 40°.

This is known as a side, angle, side (SAS) triangle. In other words, you've been given 2 side measurements and an angle.
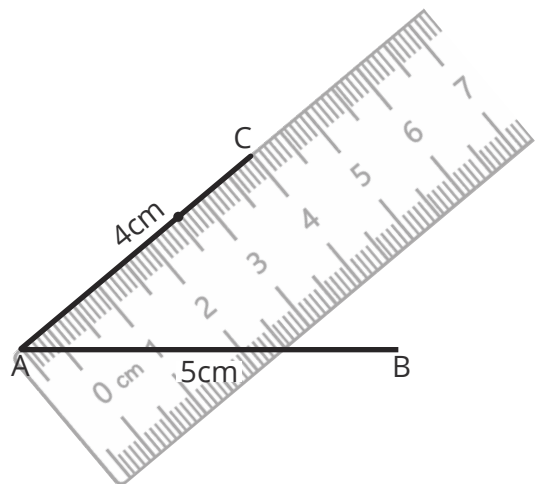
1. First of all, sketch and label a triangle so you know, roughly, what's needed. It doesn't matter which line you make the base line.
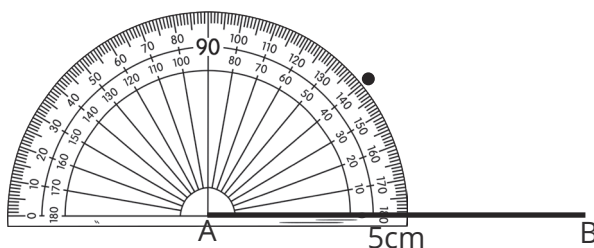

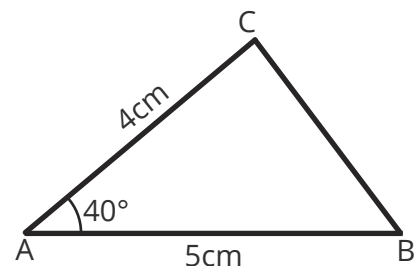2. Draw the base line and label the end points.

3. You are told that angle BAC = 40°, which means you need to draw the angle at A. Place the centre of the protractor over A, measure 40° and put a dot.

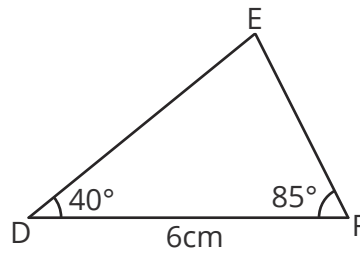4. Measure 4cm towards the dot and label it C.

5. Now that you've drawn two sides and the angle, simply join up C and B to complete the triangle.

Example 2

You might also be asked to construct an ASA triangle. This is where you are given the measurements of angle, side, angle.
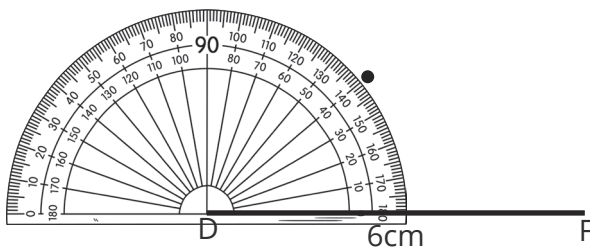
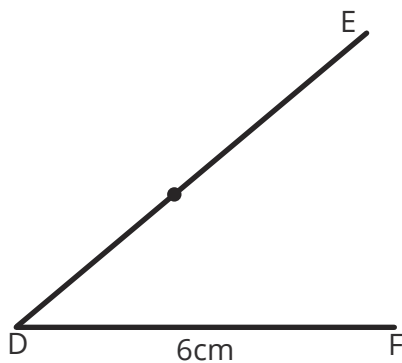**Make an accurate construction of the triangle DEF shown below.**

E

40°   85°
D   F
6cm

1. Draw the base line and label the end points D and F.

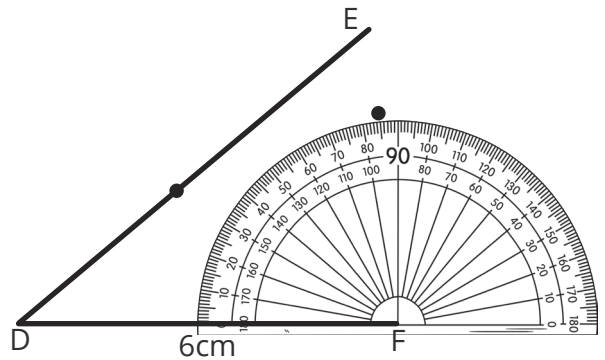D   6cm   F

2. Draw an angle of 40° at D, using a protractor.

D   6cm   F
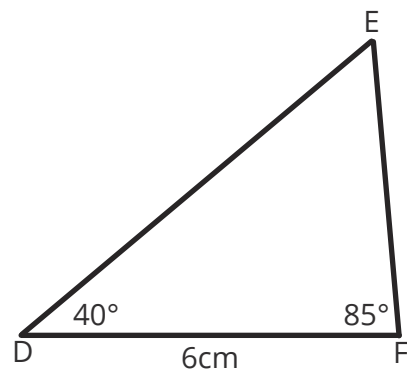
3. Draw a line from D, which goes through the dot you've made. You aren't told a particular length but make sure it is a reasonable length.

E

D   6cm   F

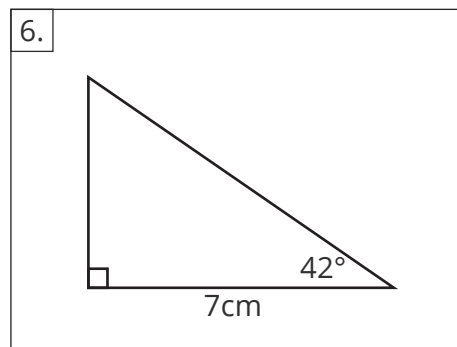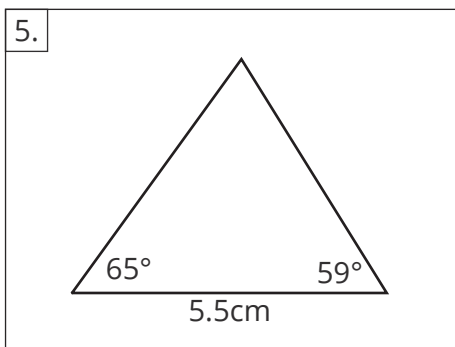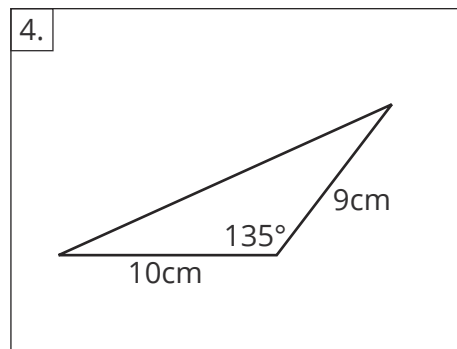4. Draw the other angle of 85° at point F, again using a protractor.
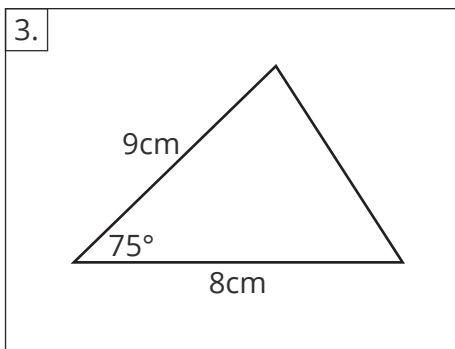
E

D   6cm   F
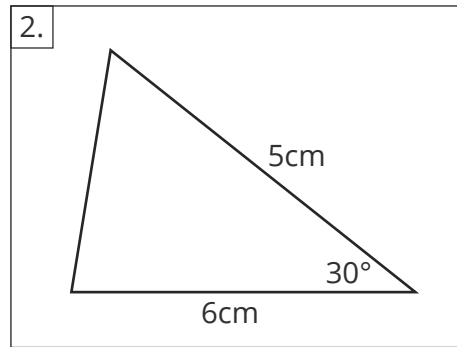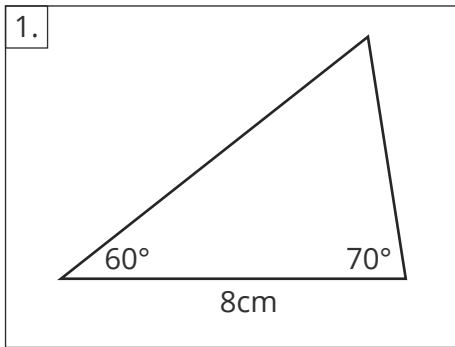
5. Now draw a line from point F, which goes through the dot you've made, to meet the other line.

E

40°   85°
D   F
6cm

Your turn

Accurately draw each of the triangles shown. Leave any construction marks visible.

1.

60°   70°
8cm

2.

5cm

30°
6cm

3.

9cm
75°
8cm

4.

9cm
135°
10cm

5.

65°   59°
5.5cm

6.

42°
7cm

Challenge

Accurately draw the sector below.

4cm
135°
4cm

Constructing Triangles (with a protractor)

Prior Knowledge:

- How to draw and measure an angle using a protractor.
- Be able to label the sides and angles of triangles.

How you construct a triangle will depend on the information you are given about the triangle. When you are given measurements which include angles, you must use the following equipment:
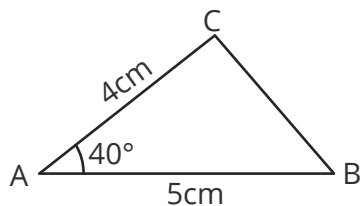
- a ruler
- a pencil
- a protractor

Example 1

Construct the triangle ABC where AB = 5cm, AC = 4cm and angle BAC = 40°.

This is known as a side, angle, side (SAS) triangle. In other words, you've been given 2 side measurements and an angle.

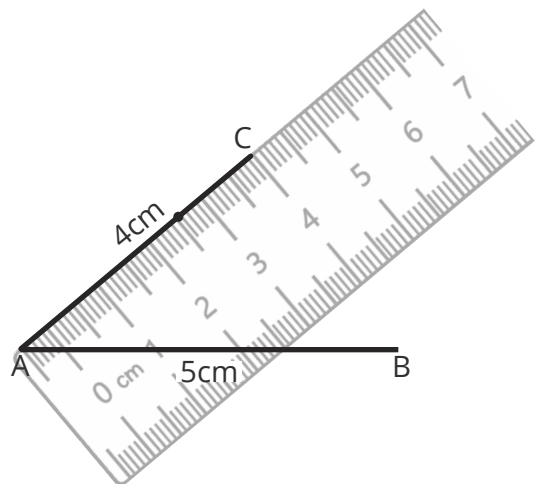1. First of all, sketch and label a triangle so you know, roughly, what's needed. It doesn't matter which line you make the base line.
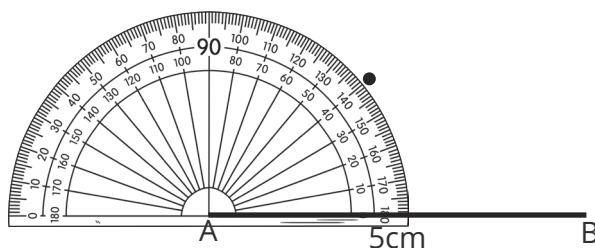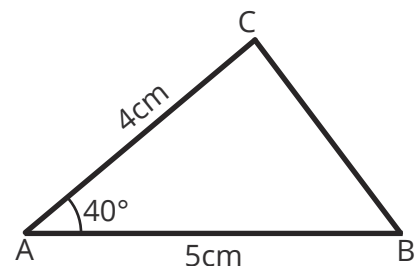
4. Measure 4cm towards the dot and label it C.

2. Draw the base line and label the end points.

3. You are told that angle BAC = 40°, which means you need to draw the angle at A. Place the centre of the protractor over A, measure 40° and put a dot.
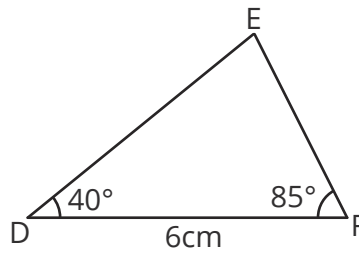
5. Now that you've drawn two sides and the angle, simply join up C and B to complete the triangle.

Example 2

You might also be asked to construct an ASA triangle. This is where you are given the measurements of angle, side, angle.
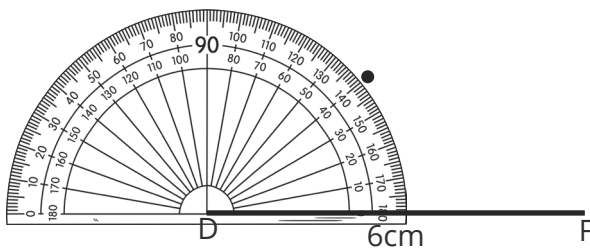
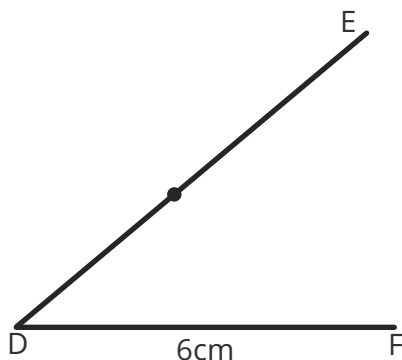**Make an accurate construction of the triangle DEF shown below.**

E

40°   85°

D   6cm   F

---

1. Draw the base line and label the end points D and F.

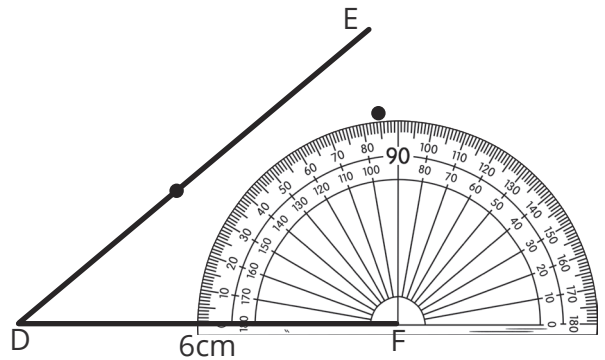D   6cm   F

2. Draw an angle of 40° at D, using a protractor.

D   6cm   F
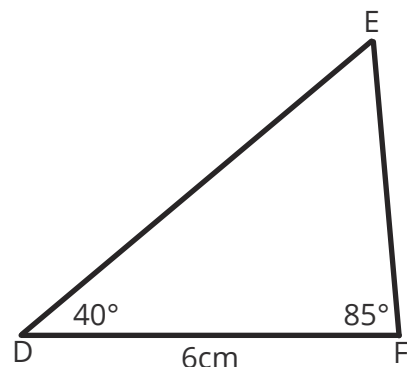
3. Draw a line from D, which goes through the dot you've made. You aren't told a particular length but make sure it is a reasonable length.

E

D   6cm   F
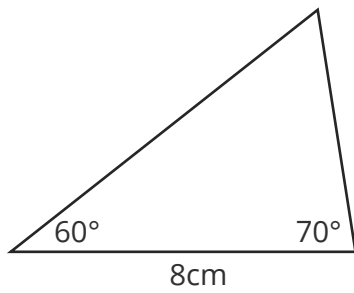
4. Draw the other angle of 85° at point F, again using a protractor.

E

D   6cm   F

5. Now draw a line from point F, which goes through the dot you've made, to meet the other line.

E

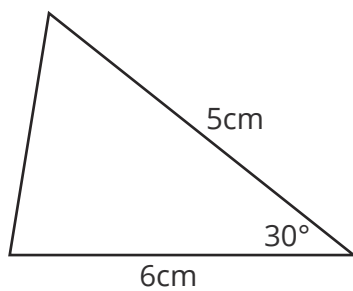40°   85°

D   6cm   F

Your turn

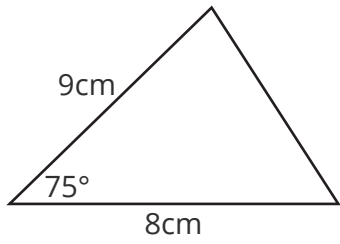Accurately draw each of the triangles shown. Leave any construction marks visible.
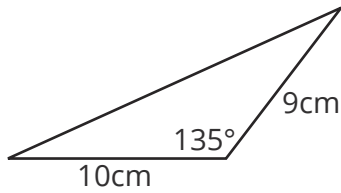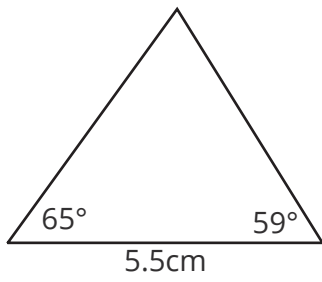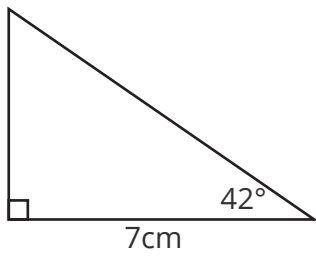
1.

2.

3.

9cm

75°

8cm

4.

9cm

135°

10cm

5.

65°   59°
5.5cm

6.

42°
7cm

Challenge

Accurately draw the sector below.

4cm

135°

4cm