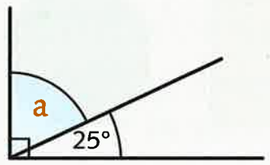
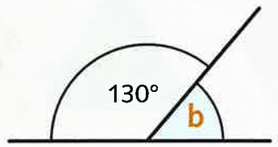
Missing angles

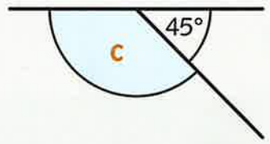
Use angle sum facts to make deductions about missing angles

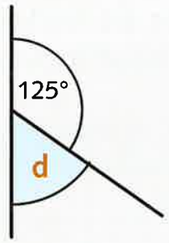
Challenge

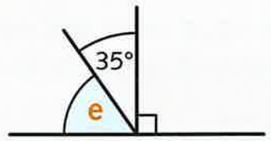
Calculate the size of the missing angle in each diagram.



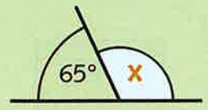








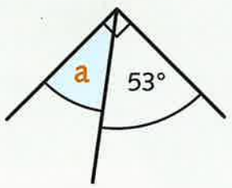
Example

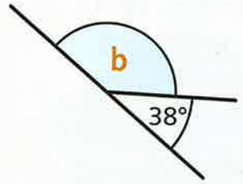


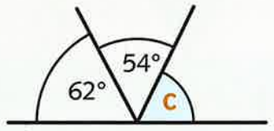
$\angle x = 180° - 65° = 115°$

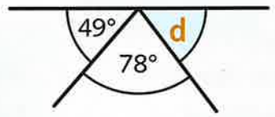
Challenge

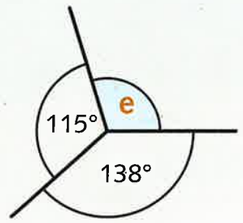
1 Calculate the size of the missing angle in each diagram.

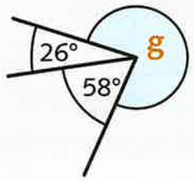




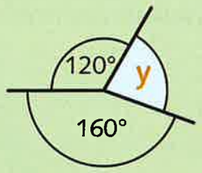








Example



$120° + 160° = 280°$

$\angle y = 360° - 280°$

$= 80°$

You will need:
- Geometry set tool

or
- ruler
- protractor

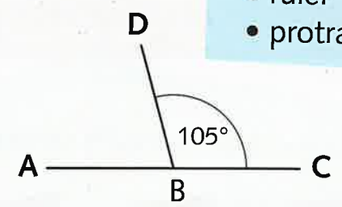
2 Work with a partner. Draw this diagram using the Geometry set tool or a ruler and a protractor.

a Calculate ∠ABD.

b Investigate what happens to ∠DBC:

i if ∠ABD increases by 15°, 20°, 25°

ii if ∠ABD decreases by 12°, 24°, 36°



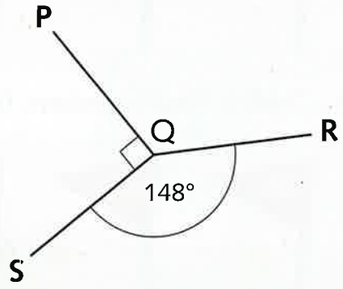
3 Work with a partner. Draw this diagram using the Geometry set tool or a ruler and a protractor.

a Calculate ∠PQR.

b Investigate what happens to ∠RQS:

i if ∠PQR increases by 35°, 45°, 55°

ii if ∠PQR decreases by 18°, 27°, 36°



Challenge 3

Draw a clock face.

- Draw a circle by either drawing round a plastic circle with a diameter of about 5 cm or by using a pair of compasses. Mark the centre of the circle.
- Work out the size of the angle between each hour and rule the angle arms to each of the hours. Number the hours 1 to 12.
- At the half hour, the hour hand is halfway between the hours. Calculate the size of the acute or the obtuse angle that is formed by the hour and minute hands for the twelve half hour times from 2:30 to 12:30.

You will need:
- plastic circle

or
- pair of compasses
- protractor
- ruler

Example