

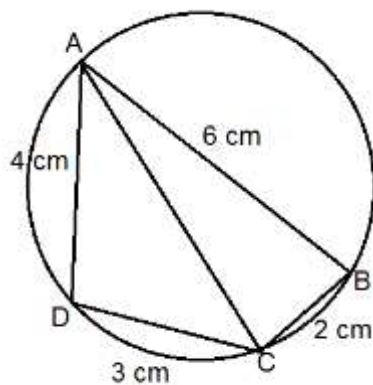
Section 1: Triangles, sine, cosine rule

Exercise

1. Triangle ABC is right angled at B. $AB = 10\text{cm}$ and $AC = 26\text{ cm}$.
 - (i) Calculate the length of BC.
 - (ii) Write down the values of $\sin A$, $\cos A$, and $\tan A$ leaving your answers as fractions.
 - (iii) Write down the values of $\sin C$, $\cos C$, and $\tan C$ leaving your answers as fractions.
 - (iv) Write down three separate equations connecting the trig ratios for angle A to those for angle C.
 - (v) In general, what conclusions can you draw from your answers to iv)?
2.
 - (i) Sketch the curve of $y = \tan x$ for angles between 0° and 360° .
 - (ii) Solve the equation for $\tan x = 1$ and illustrate the roots on your sketch.
 - (iii) Write down two angles that have $\tan x = -1$ in the interval 0° to 360° without using your calculator.
3. Using a sketch of $y = \sin x$, write down all of the angles between 90° and 540°
 - (i) that have the same sin as 40° ;
 - (ii) that have the same sine as 160° .
4. Find all of the values of x between 0° to 360° such that
 - (i) $\cos x = \cos 25^\circ$
 - (ii) $\sin x = \sin 50^\circ$
 - (iii) $\tan x = \tan 120^\circ$
 - (iv) $\sin x = -\sin 60^\circ$
 - (v) $\cos x = -\cos 20^\circ$
5. Write the following as fractions or using square roots. You should not need your calculator.
 - (i) $\sin 120^\circ$
 - (ii) $\cos (-120^\circ)$
 - (iii) $\tan 135^\circ$
 - (iv) $\sin 300^\circ$
 - (v) $\cos 270^\circ$
6. In the following give your answers as fractions
 - (i) θ is acute and $\sin \theta = \frac{12}{13}$. Write down the value of $\cos \theta$.
 - (ii) θ is obtuse and $\sin \theta = \frac{7}{25}$. write down the values of $\cos \theta$ and $\tan \theta$.
 - (iii) θ is obtuse and $\tan \theta = -\frac{8}{15}$. Write down the values of $\sin \theta$ and $\cos \theta$.
7. In the triangle ABC, angle $A = 66^\circ$, angle $B = 42^\circ$ and $AB = 12\text{ cm}$. Find the lengths of AC and BC.

AQA FM Geometry II 1 Exercise

8. In the triangle ABC, $BC = 6$ cm, $AC = 9$ cm and angle $C = 97^\circ$.
- (i) Find the length of AB.
 - (ii) Find the angles A and B.
 - (iii) Find the area of the triangle.
9. In the triangle PQR, $QR = 8$ cm, $PR = 9$ cm and $PQ = 10$ cm. Find the angles of the triangle.
10. In triangle XYZ, $X = 100^\circ$, $Y = 30^\circ$ and $XY = 10$ cm. Calculate the area of the triangle.
11. In the diagram below, ABCD is a cyclic quadrilateral.
 $AB = 6$ cm, $BC = 2$ cm, $CD = 3$ cm, $AD = 4$ cm.

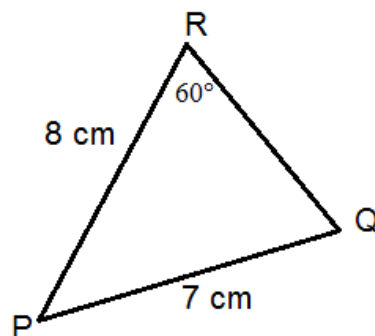


Not accurately drawn

Prove that triangles ABC and ADC have equal area.

12. **Do not use a calculator for this question**

In triangle PQR, $RP = 8$ cm, $PQ = 7$ cm, $\angle PRQ = 60^\circ$.



Not accurately drawn

Find the length of RQ.