Trigonometry

P1 | Study notes, worked example and practice

What to understand

Use the sine rule or cosine rule for non-right-angled triangles. Set the calculator to the correct angle mode.

For an angle measured in radians, arc length and sector area follow directly from the radius and angle.

Key formulae

$$\frac{a}{\sin A} = \frac{b}{\sin B}, \qquad a^2 = b^2 + c^2 - 2bc\cos A$$

$$\text{Area} = \frac{1}{2}ab\sin C$$

$$s = r\theta, \qquad A = \frac{1}{2}r^2\theta, \qquad 180^\circ = \pi \text{ radians}$$

Worked example

$$150^\circ = \frac{150\pi}{180} = \frac{5\pi}{6}$$

Convert degrees to radians by multiplying by π/180.

Practice questions

Show your working. Try these without looking at the answers.

1. Convert 150° to radians.

2. A sector has radius 6 cm and angle π/3 radians. Find its arc length and area.

3. Find the area of a triangle with sides 5 cm and 8 cm enclosing an angle of 30°.

Answers

Use these to check the method as well as the final answer.

1. $5\pi/6$ radians.

2. Arc length 2π cm; area 6π cm^2.

3. 10 cm^2.