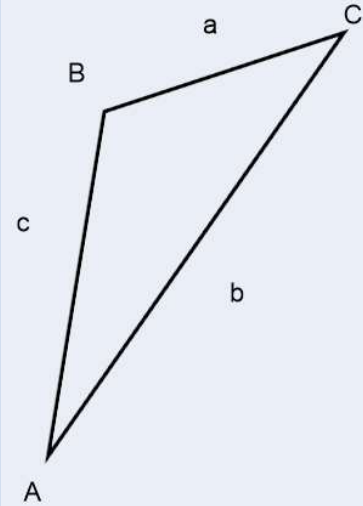
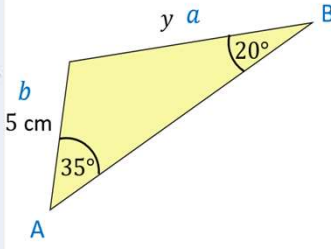
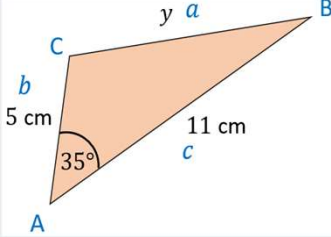
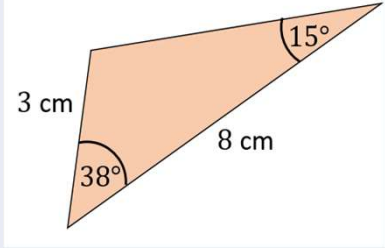
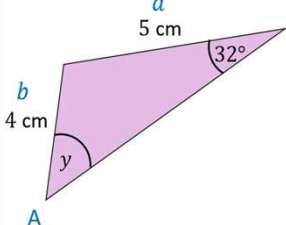
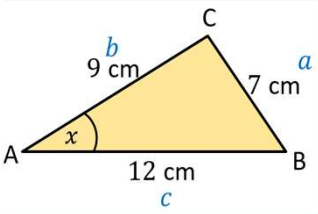
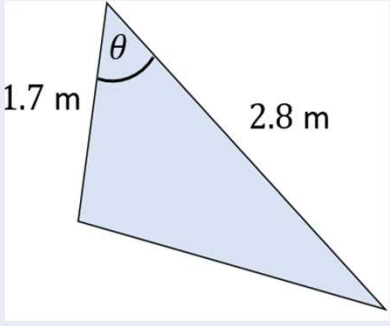


Trigonometry in non right angles triangles

Keywords:	Opposite / Adjacent / perpendicular / inverse / subject				
Definition / Description:	Opposite: The side opposite the given angle	Adjacent: The side in between the given angle and the right angle	Perpendicular: Two sides that are at a right angle to one another	Inverse: To apply an opposite function	Subject: The unknown variable of a formula
Knowledge points:	Label triangle to use with trigonometric formulae	Know and apply the sine rule to find unknown angles and sides $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$	Know and apply the cosine rule to find unknown angles and sides $a^2 = b^2 + c^2 - 2bccosA$	Know and apply $Area = \frac{1}{2}absinC$ to find area/ sides and angles Calculate area of a triangle when given 2 side lengths and an angle	
Knowledge point examples:		Use the sine rule to work out the unknown length y.  $\frac{\sin A}{a} = \frac{\sin B}{b}$ $\frac{\sin 35}{5} = \frac{\sin 20}{y}$ $a = \frac{5}{\sin 20} \times \sin 35$ $a = 8.39 \text{ cm}$	Use the cosine rule to work out the unknown  $a^2 = b^2 + c^2 - 2bccosA$ $y^2 = 5^2 + 11^2 - 2 \times 5 \times 11 \cos 35$ $y^2 = 55.893$ $y = \sqrt{55.893}$ $y = 7.48 \text{ cm}$	Find the area of the triangle  $Area = \frac{1}{2}absinC$ $Area = \frac{1}{2} \times 3 \times 8 \times \sin 38$ $Area = 7.4 \text{ cm}^2$	
		Use the sine rule to work out the unknown angle y.  $\frac{\sin A}{a} = \frac{\sin B}{b}$ $\frac{\sin A}{5} = \frac{\sin 32}{4}$ $\sin A = \frac{4}{5} \times \sin 32$ $\sin A = 0.662$ $\sin^{-1}(0.662) = 41.5$ $y = 41.5^\circ$	Use the cosine rule to work out angle x  $7^2 = 9^2 + 12^2 - 2 \times 9 \times 12 \times \cos x$ $49 = 225 - 216 \cos x$ $216 \cos x + 49 = 225$ $216 \cos x = 176$ $\cos x = \frac{176}{216}$ $\cos^{-1}\left(\frac{176}{216}\right) = 35.43$ $x = 35^\circ$	Area of the triangle = 1.5 m ² Calculate the size of angle θ .  $Area = \frac{1}{2}absinC$ $1.5 = \frac{1}{2} \times 1.7 \times 2.8 \sin \theta$ $1.5 = 2.38 \sin \theta$ $\frac{1.5}{2.38} = \sin \theta$ $\theta = \sin^{-1}\left(\frac{1.5}{2.38}\right)$ $\theta = 39.1^\circ$	
Linked Knowledge Maps	Pythagoras and Trigonometry in 2d and 3d				