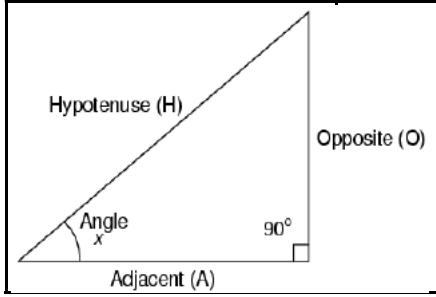
Foundation Maths Trigonometry Year 10 Autumn 1

Bluecoat Wollaton
believe in yourself, in others, in God

Section 1: Key Vocabulary

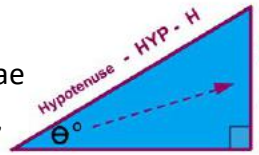
Tier 3 vocabulary	Definition
Trigonometry	The mathematical study of triangles.
Ratio	Compares the size of one part to another part.
Right-angled triangle	A triangle with one 90° angle.
Hypotenuse	The longest side of a right-angled triangle.
Adjacent side	The side next to an angle in a right-angled triangle, but not the hypotenuse.
Opposite side	The one side not next to an angle in a right-angled triangle.
SOH CAH TOA	An acronym for remembering how to use trigonometry in right-angled triangles. S, C and T represent the trigonometric functions, and H, A and O represent the sides of the triangle.
Tier 2 vocabulary	**Definition**
Right angle	An angle of size 90°.
Plot	Draw a detailed graph or diagram, showing all features accurately.
Sketch	Draw a rough graph or diagram, showing the important features.

Section 2: Key Facts and Processes



You need to be able to label the sides on a right-angled triangle with O, A or H.

Sine formulae use an angle, the opposite side and the hypotenuse



$\sin\theta = \frac{OPP}{HYP}$

$OPP = HYP \times \sin\theta$

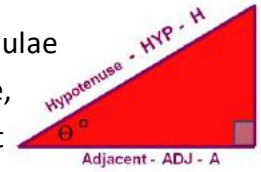
$HYP = \frac{OPP}{\sin\theta}$

There is a fourth and final Formula for finding the Angle.

It is called the "Inverse "Sine" formula.

$\theta = \sin^{-1}\frac{OPP}{HYP}$

Cosine formulae use an angle, the adjacent side and the hypotenuse)



$\cos\theta = \frac{ADJ}{HYP}$

$ADJ = HYP \times \cos\theta$

$HYP = \frac{ADJ}{\cos\theta}$

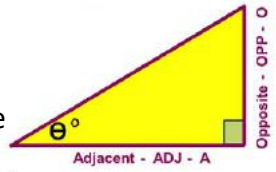
These are the four formulas for working with Cosine Triangles.

We also use the special "Cos" and "Cos⁻¹" calculator buttons when solving Cosine Triangles.

$\theta = \cos^{-1}\frac{ADJ}{HYP}$

Tangent

Formulae use the opposite and adjacent sides



$\tan\theta = \frac{OPP}{ADJ}$

$OPP = ADJ \times \tan\theta$

$ADJ = \frac{OPP}{\tan\theta}$

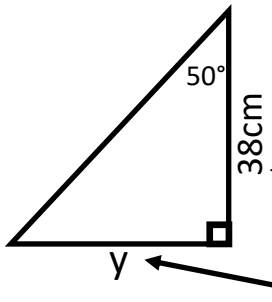
These are the four formulas for working with Tangent Triangles.

We also use the special "Tan" and "Tan⁻¹" calculator buttons when solving Tangent Triangles.

$\theta = \tan^{-1}\frac{OPP}{ADJ}$

Section 3: Support

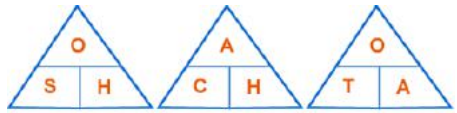
Work out the length of y to 1 decimal place.



First label the sides to see which lengths we have/are trying to find.

Adjacent (A)

Opposite (O)



Using the formula triangles above can help us to use the correct trigonometric ratio:

$$\tan\theta = \frac{O}{A} \qquad \tan 50 = \frac{y}{38}$$

$$y = 38 \times \tan 50 = 45.3 \ (to\ 1dp)$$

Access **Hegarty Maths** on a computer, tablet device or smartphone for additional support: **www.hegartymaths.com**

Select **Bluecoat Wollaton Academy** as your school.

Topic	Videos
Trigonometry (finding a side)	508-510
Trigonometry (finding an angle)	511-512
Trigonometry (multi-step)	513 & 514
Trigonometry (elevation/	515