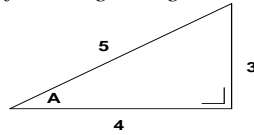


Tan, Sin and Cos Ratios

Find $\tan A$, $\cos A$ and $\sin A$ of the following triangle



$$\tan A = \frac{\text{Opposite}}{\text{Adjacent}} \quad \text{Toms} = \frac{\text{Old}}{\text{Aunt}}$$

$$\sin A = \frac{\text{Opposite}}{\text{Hypotenuse}} \quad \text{Sat} = \frac{\text{On}}{\text{Her}}$$

$$\cos A = \frac{\text{Adjacent}}{\text{Hypotenuse}} \quad \text{Coat} = \frac{\text{And}}{\text{Hat}}$$

Pythagoras

$$\text{Hypotenuse}^2 = \text{Opposite}^2 + \text{Adjacent}^2$$

$$\cos A = \frac{5}{13}$$

Find $\tan A$ and $\sin A$

Draw a rough sketch and fill in the known sides. Use Pythagoras to find out the other side? Use the above ratios

Calculator Work

Find $\sin 33^\circ 16'$

Press $\boxed{\text{Sin}}$ then type 33 then the $\boxed{\text{DMS}}$ button then 16 then '='
= **0.5486** (round off to 4 decimals)

Calculator Work

$\cos A = 0.7071$ Find A

Press $\boxed{2^{\text{nd}}}$ $\boxed{\text{Function}}$ Press $\boxed{\text{Cos}}$ then type 0.7071 then '='
 $A = 45^\circ$

Unit Circle

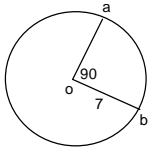
Find the two values of A , given that $\cos A = -0.8660$ and $0^\circ \leq A \leq 360^\circ$
Ignore the sign and use your calculator to find the reference angle.



Look at the sign and use to see what quadrants your two angles lie in. Draw the two angles – they will be the reference angle distance from the x axis.

Area of a Sector/ Length of an Arc

Find the area of the sector aob and the length of the arc ab where o is the centre of a circle with radius 7. Use $\pi = 3.14$



To find the area of sector or length of arc (which is only a fraction of the circle) we multiply πr^2 or $2\pi r$ by the fraction.

$$\text{Area of a Sector} = \frac{\phi}{360} \times \pi r^2$$

$$\text{Length of an Arc} = \frac{\phi}{360} \times 2\pi r$$

where ϕ is the angle of the sector

Trigonometry Q5 Paper 2

Right Angled Triangles

abc is a right-angled triangle with $|ac| = 6\text{cm}$ and $\angle abc = 60^\circ$. Find $|ab|$.

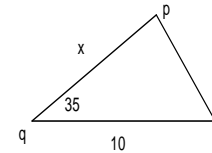
To do this we first draw a rough sketch of the triangle filling in any information we know. We put an X next to the angle or side we are looking for. We decide what ratio Tan, Sin or Cos is relevant. We solve for x .

Area of a Triangle

Use the formula $\frac{1}{2} ab \sin C$ where a and b are the two sides of a triangle and C is the angle between them.

Can I find a missing side or angle given the area of a triangle?

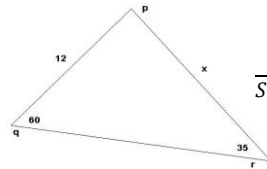
The Area of triangle pqr is 24cm^2 . Find the length of the side $|pq|$



Write down the formula, fill in any known values and let it equal the area. Solve for the missing value.

Sine Rule

In the triangle pqr , $|pq| = 12\text{cm}$, $\angle pqr = 60^\circ$ and $\angle qrp = 35^\circ$. Find $|pr|$.



$$\frac{\text{any side}}{\text{Sine Opposite Angle}} = \frac{\text{any other side}}{\text{Sine of its Opposite Angle}}$$

We use the Sine formula to find a missing side or angle when we have been given 2 sides and one of the opposite angles OR two angles and one of the opposite sides of a triangle. It basically says that any side over the sine of its opposite angle is equal to any other side over its opposite angle