Trigonometry

Class 1

Example 1 Find $\sin 31^0$ correct to two decimal places.

Example 2 Find $\cos 54^0 29'$ correct to 2 decimal places

Example 3 If $\tan A = 1.23$ find a value for A .

Example 4 Convert 60^o in terms of π.

Example 5 Convert $\frac{\pi}{6}$ to degrees

Example 6 Express in surd form $\cos 135^0$.

Example 7 Find in surd form

(i) $\tan 330^0$

(ii) $\sin 240^0$

Class 2

Example 1 Solve $\cos A = -\frac{\sqrt{3}}{2}$ where $0 \le A \le 360^0$.

Example 2 Solve the equation $\tan A = -1$ where $0^o \le A \le 360^o$

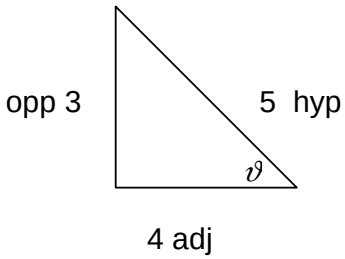
Example 3 Solve the equation $\cos \vartheta = -0.45$, where $0 \le A \le 2\pi$.

Example 4 Solve $\sin A = \frac{1}{\sqrt{2}}$

Example 5 Draw $\sin A = \frac{3}{7}$

Class 3

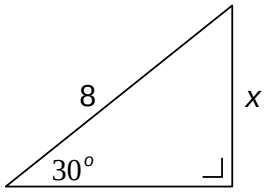
Example 1 Use the information given in the diagram to show that
$\sin^2 \vartheta + \cos^2 \vartheta > \tan^2 \vartheta$



Example 2 If $\sin A = 5/13$ and A is an acute angle write down the value of $\cos A$ without tables or calculator.

Example 3 Find the length of the sides of a square, which has a diagonal, which is 10cm long.

Example 4 Find the value of x.

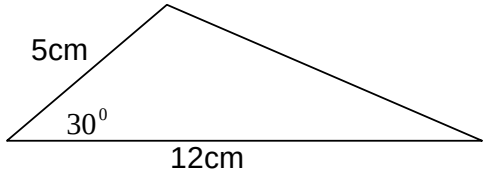


Class 4

Example 1 A ladder, which is 6m long, leans against a vertical wall. The foot of the ladder is on level ground at a distance of 1m from the bottom of the wall. Find the measure of the angle, which the ladder makes with the ground to the nearest degree.

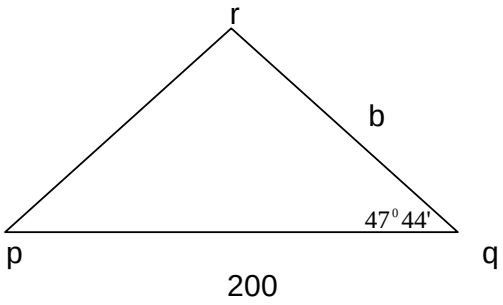
Example 2 A man stands on top of a vertical cliff. He spots a buoy 27 m from the base of the cliff at an angle of depression of 35^0. How high is the cliff to two decimal places?

Example 3 Find the area of the triangle shown:



Example 4 The area of the triangle pqr is $9028\,m^2$, |pq| = 200m and $|pqr| = 47^0 44'$.

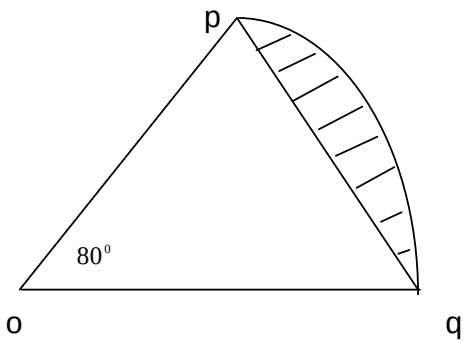
Find |qr|.



Example 5 In the diagram, o is the centre of a sector opq, which has a radius 6cm. $|\angle poq| = 80^0$.

Find, correct to two decimal places

(i) area of triangle poq
(ii) the area of the shaded region, taking $\pi = 3.14$.



Trigonometry 5

Example 1 Two lighthouses, p and q, are 73 km apart. Q is directly East of p. Another lighthouse, r, is situated 52 km from q. The bearing of r from p is E $31^0 20'$ N. Calculate |pr|, correct to the nearest kilometre.

Example 2 t, x, u and y are points on level ground, x, u and y in a straight line.

From x the direction of t is East $39^0 46'$ North.

From y the direction of t is West $68^0 26'$ North.

u is directly South of t.

|xy| = 95m

Find |tu|, correct to the nearest meter.