

8 Trigonometry

8.1 Basic trigonometric equations

In this exercise you will learn how to:

- use the four-quadrant diagram to find angles with a given sine, cosine or tangent
- rearrange an equation to find the sine, cosine or tangent of an angle
- find the points of intersection of a trigonometric graph and a straight line by solving an appropriate equation

1 For $0 \leq x < 360$, solve the equation:

(a) $\sin x^\circ = 0.82$

(c) $\tan x^\circ = -1.3$

(e) $3 \sin x^\circ = -2$

(g) $6 \tan x^\circ - 1 = 4$

(i) $3 + \sin x^\circ = 1 - 4 \sin x^\circ$

(k) $1 - 3 \tan x^\circ = 4$

(m) $4 \sin^2 x^\circ = 3$

(b) $\cos x^\circ = -0.4$

(d) $4 \cos x^\circ = 1$

(f) $5 \tan x^\circ = -1$

(h) $5 \cos x^\circ + 2 = -2$

(j) $4(\sin x^\circ + 2) = 10$

(l) $\tan^2 x^\circ = 3$

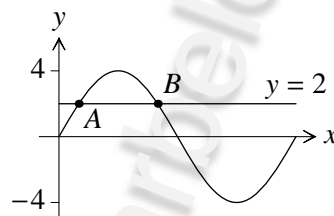
(n) $2 \cos^2 x^\circ - 1 = 0$

2 The diagram shows the graphs of $y = p \sin x^\circ$ and $y = 2$.

(a) Write down the value of p .

The line and the curve intersect at A and B as shown in the diagram.

(b) Find the coordinates of A and B .

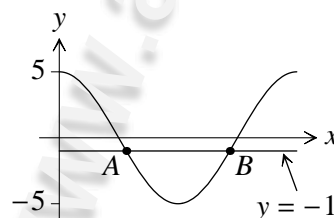


3 The diagram shows the graphs of $y = p \cos x^\circ$ and $y = -1$.

(a) Write down the value of p .

The line and the curve intersect at A and B as shown in the diagram.

(b) Find the coordinates of A and B .



4 The diagram shows the graph of $y = a \sin t^\circ + b$.

(a) Write down the values of a and b .

The line with equation $y = 2$ intersects the curve at P and Q as shown in the diagram.

(b) Find the coordinates of P and Q .

