

Trigonometric Equations

1. Solve the following equations for $0^{\circ} \leq x^{\circ} \leq 360^{\circ}$

(a) $2\sin x^{\circ} - 1 = 0$

(b) $4\cos x^{\circ} - 3 = 0$

(c) $5\tan x^{\circ} - 12 = 0$

(d) $3\sin x^{\circ} + 6 = 7$

(e) $4\tan x^{\circ} - 3 = 10$

(f) $6\cos x^{\circ} - 2 = 3$

(g) $3\cos x^{\circ} + 4 = 2$

(h) $7\tan x^{\circ} + 3 = 0$

(i) $6\sin x^{\circ} + 5 = 0$

(j) $10\cos x^{\circ} + 12 = 6$

(k) $4 + 3\tan x^{\circ} = 2$

(l) $8 + 7\sin x^{\circ} = 2$

(m) $7 + 9\cos x^{\circ} = 8$

(n) $6\cos x^{\circ} + 3\tan 45^{\circ} = 0$

(o) $2\sin x^{\circ} - \cos 80^{\circ} = 0$

(p) $10\sin 75^{\circ} + 3\tan x^{\circ} = 0$

(q) $7\tan 50^{\circ} + 3\tan x^{\circ} = 2$

(r) $4\cos 45^{\circ} = 1 - 8\sin x^{\circ}$

(s) $4\tan x^{\circ} = 12 - 2\tan x^{\circ}$

(t) $7\sin x^{\circ} + 3 = 3\sin x^{\circ}$

2. Solve the following equations for $0^{\circ} \leq x^{\circ} \leq 180^{\circ}$

(a) $5\sin x^{\circ} + 2 = 4$

(b) $6 + 8\cos x^{\circ} = 5$

(c) $4\tan x^{\circ} - 3\tan 40^{\circ} = 1$

(d) $7 = 3\cos 20^{\circ} + 12\cos x^{\circ}$

3. Solve the following equations for $180^{\circ} \leq x^{\circ} \leq 360^{\circ}$

(a) $5\sin x^{\circ} + 10 = 7$

(b) $3\tan 50^{\circ} + 2\tan x^{\circ} = 0$

(c) $2 + 3\cos x^{\circ} = 0.5$

(d) $4\tan x^{\circ} - 10 = 2\tan x^{\circ}$

4. A triangle ABC has area 65 cm^2 . Given $AB = 11 \text{ cm}$ and $AC = 14 \text{ cm}$, calculate the possible sizes of angle BAC.

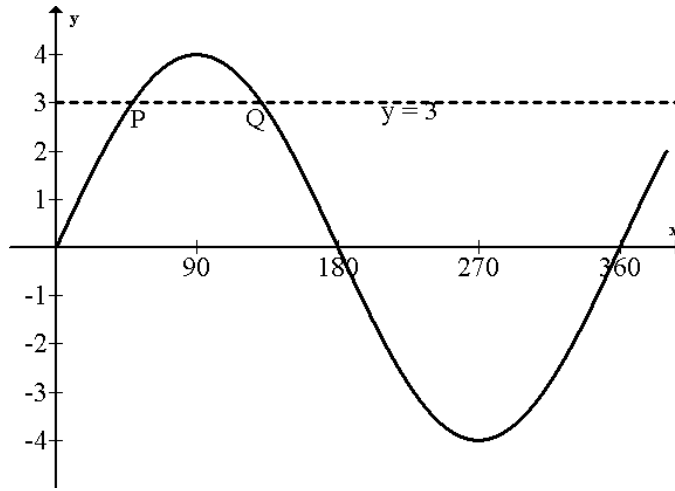
5. A triangle PQR has area 300 cm^2 . Given $PQ = 30 \text{ cm}$ and $PR = 21 \text{ cm}$, calculate the possible sizes of angle QPR.

6. Triangle ABC has an area of 14 square centimetres. $AB = 6$ centimetres and $AC = 7$ centimetres. Calculate the possible sizes of angle BAC.

7. Triangle KLM has an area of 75 cm^2 . $KL = 12 \text{ cm}$ and $LM = 14 \text{ cm}$, calculate angle KLM given it is acute.

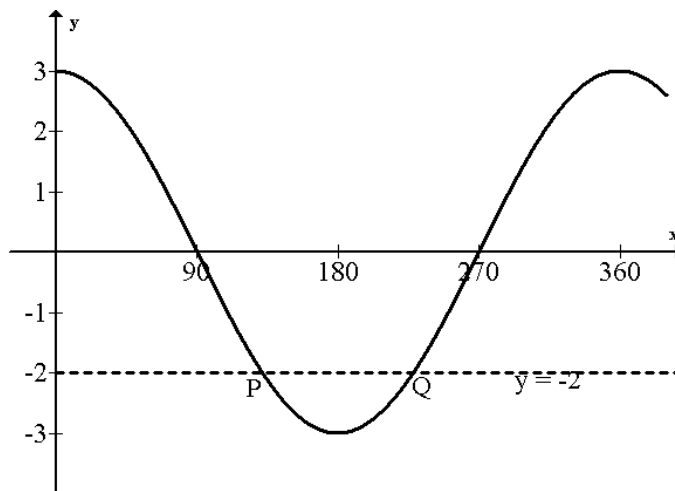
8. Triangle UVW has area 265 mm^2 . $UV = 20 \text{ mm}$ and $UW = 30 \text{ mm}$, calculate angle VUW given it is obtuse.

9. The diagram shows the graph of $y = 4 \sin x$.



The line $y = 3$ has been drawn on the graph. Find the coordinates of P and Q.

10. The graph of $y = 3 \cos x$ is shown below.



The line $y = -2$ has been drawn on the graph. Find the coordinates of P and Q.