

Solving trig equations - finding a single solution - Answers

Solving trig equations - single solution - Answers (p22)

$$\begin{aligned} \text{a) } \sin x^\circ &= 0.5 \\ x^\circ &= \sin^{-1}(0.5) \\ &= 30^\circ \end{aligned}$$

$$\begin{aligned} \text{b) } \cos x^\circ &= 0.866 \\ x^\circ &= \cos^{-1}(0.866) \\ &= 30.003 \\ &\approx 30^\circ \end{aligned}$$

$$\begin{aligned} \text{c) } \tan x^\circ &= 1 \\ x^\circ &= \tan^{-1}(1) \\ &= 45^\circ \end{aligned}$$

$$\begin{aligned} \text{d) } \cos x^\circ &= -0.5 \\ \cos^{-1}(0.5) &= 60^\circ \\ x^\circ &= 180 - 60 \\ &= 120^\circ \end{aligned}$$

$$\begin{aligned} \text{e) } \tan x^\circ &= -0.577 \\ \tan^{-1}(0.577) &= 29.98 \\ x^\circ &= 180 - 29.98 \\ &= 150.02 \\ &\approx 150^\circ \end{aligned}$$

$$\begin{aligned} \text{f) } \sin x^\circ &= -0.866 \\ \sin^{-1}(0.866) &= 60^\circ \\ x^\circ &= 180 + 60 \\ &= 240^\circ \end{aligned}$$

$$\begin{aligned} \text{g) } \tan x^\circ &= 1.732 \\ x^\circ &= \tan^{-1}(1.732) \\ &= 60^\circ \end{aligned}$$

$$\begin{aligned} \text{h) } \sin x^\circ &= 0.707 \\ x^\circ &= \sin^{-1}(0.707) \\ &= 45^\circ \end{aligned}$$

$$\begin{aligned} \text{i) } \cos x^\circ &= 0.707 \\ x^\circ &= \cos^{-1}(0.707) \\ &= 45^\circ \end{aligned}$$

$$\begin{aligned} \text{j) } \sin x^\circ &= -0.707 \\ x^\circ &= 180 + 45 \\ &= 225^\circ \end{aligned}$$

$$\begin{aligned} \text{k) } \cos x^\circ &= -0.866 \\ x^\circ &= 180 - 30 \\ &= 150^\circ \end{aligned}$$

$$\begin{aligned} \text{l) } \tan x^\circ &= -1.732 \\ x^\circ &= 180 - 60 \\ &= 120^\circ \end{aligned}$$

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$$\begin{aligned} 2a) \sin x^\circ &= 0.313 \\ x^\circ &= \sin^{-1}(0.313) \\ &= 18^\circ \end{aligned}$$

$$\begin{aligned} b) \cos x^\circ &= 0.425 \\ x^\circ &= \cos^{-1}(0.425) \\ &= 65^\circ \end{aligned}$$

$$\begin{aligned} c) \tan x^\circ &= 5.145 \\ x^\circ &= \tan^{-1}(5.145) \\ &= 79^\circ \end{aligned}$$

$$\begin{aligned} d) \cos x^\circ &= -0.087 \\ \cos^{-1}(0.087) &= 85^\circ \\ x^\circ &= 180 - 85 \\ &= 95^\circ \end{aligned}$$

$$\begin{aligned} e) \tan x^\circ &= -0.869 \\ \tan^{-1}(0.869) &= 41^\circ \\ x^\circ &= 180 - 41 \\ &= 139^\circ \end{aligned}$$

$$\begin{aligned} f) \sin x^\circ &= -0.191 \\ \sin^{-1}(0.191) &= 11^\circ \\ x^\circ &= 180 + 11 \\ &= 191^\circ \end{aligned}$$

$$\begin{aligned} g) \tan x^\circ &= 11.43 \\ x^\circ &= \tan^{-1}(11.43) \\ &= 85^\circ \end{aligned}$$

$$\begin{aligned} h) \sin x^\circ &= 0.695 \\ x^\circ &= \sin^{-1}(0.695) \\ &= 44^\circ \end{aligned}$$

$$\begin{aligned} i) \cos x^\circ &= 0.755 \\ x^\circ &= \cos^{-1}(0.755) \\ &= 41^\circ \end{aligned}$$

$$\begin{aligned} j) \sin x^\circ &= -0.358 \\ \sin^{-1}(0.358) &= 21^\circ \\ x^\circ &= 180 + 21 \\ &= 201^\circ \end{aligned}$$

$$\begin{aligned} k) \cos x^\circ &= -0.682 \\ \cos^{-1}(0.682) &= 47^\circ \\ x^\circ &= 180 - 47 \\ &= 133^\circ \end{aligned}$$

$$\begin{aligned} l) \tan x^\circ &= -0.268 \\ \tan^{-1}(0.268) &= 51^\circ \\ x^\circ &= 180 - 51 \\ &= 129^\circ \end{aligned}$$