Solving trig equations - single solution - Answers (p22)

1 a) $\sin x° = 0.5$
$$x° = \sin^{-1}(0.5)$$
$$= 30°$$

b) $\cos x° = 0.866$
$$x° = \cos^{-1}(0.866)$$
$$= 30.003$$
$$\approx 30°$$

c) $\tan x° = 1$
$$x° = \tan^{-1}(1)$$
$$= 45°$$

d) $\cos x° = -0.5$
$$\cos^{-1}(0.5) = 60°$$
$$x° = 180 - 60$$
$$= 120°$$

e) $\tan x° = -0.577$
$$\tan^{-1}(0.577) = 29.98$$
$$x° = 180 - 29.98$$
$$= 150.02$$
$$\approx 150°$$

f) $\sin x° = -0.866$
$$\sin^{-1}(0.866) = 60°$$
$$x° = 180 + 60$$
$$= 240°$$

g) $\tan x° = 1.732$
$$x° = \tan^{-1}(1.732)$$
$$= 60°$$

h) $\sin x° = 0.707$
$$x° = \sin^{-1}(0.707)$$
$$= 45°$$

i) $\cos x° = 0.707$
$$x° = \cos^{-1}(0.707)$$
$$= 45°$$

j) $\sin x° = -0.707$
$$x° = 180 + 45$$
$$= 225°$$

k) $\cos x° = -0.866$
$$x° = 180 - 30$$
$$= 150°$$

l) $\tan x° = -1.732$
$$x° = 180 - 60$$
$$= 120°$$

Solving trig equations - finding a single solution - Answers

2a) $\sin x° = 0.313$
$\quad x° = \sin^{-1}(0.313)$
$\quad\quad = 18°$

b) $\cos x° = 0.425$
$\quad x° = \cos^{-1}(0.425)$
$\quad\quad = 65°$

c) $\tan x° = 5.145$
$\quad x° = \tan^{-1}(5.145)$
$\quad\quad = 79°$

d) $\cos x° = -0.087$
$\quad \cos^{-1}(0.087) = 85°$
$\quad x° = 180 - 85$
$\quad\quad = 95°$

e) $\tan x° = -0.869$
$\quad \tan^{-1}(0.869) = 41°$
$\quad x° = 180 - 41$
$\quad\quad = 139°$

f) $\sin x° = -0.191$
$\quad \sin^{-1}(0.191) = 11°$
$\quad x° = 180 + 11$
$\quad\quad = 191°$

g) $\tan x° = 11.43$
$\quad x° = \tan^{-1}(11.43)$
$\quad\quad = 85°$

h) $\sin x° = 0.695$
$\quad x° = \sin^{-1}(0.695)$
$\quad\quad = 44°$

i) $\cos x° = 0.755$
$\quad x° = \cos^{-1}(0.755)$
$\quad\quad = 41°$

j) $\sin x° = -0.358$
$\quad \sin^{-1}(0.358) = 21°$
$\quad x° = 180 + 21$
$\quad\quad = 201°$

k) $\cos x° = -0.682$
$\quad \cos^{-1}(0.682) = 47°$
$\quad x° = 180 - 47$
$\quad\quad = 133°$

l) $\tan x° = -0.268$
$\quad \tan^{-1}(0.268) = 51°$
$\quad x° = 180 - 51$
$\quad\quad = 129°$