Trigonometric Equations – Questions

Q1) Solve the following equations with the use of a calculator.

a) $3 \sin x - 1 = 0, 0 \le x \le 360°$

b) $4 \tan x = 2, 0 \le x \le 180°$

Q2) Solve the following equations without the use of a calculator.

a) $\sqrt{2} \sin x + 1 = 0, 0 \le x \le 360°$

b) $2 \cos x = \sqrt{3}, 0 \le x \le 180°$

Q3) Solve the following equations with the use of a calculator.

a) $3 \sin(2x - 45) = 1, 0 \le x \le 360°$

b) $\cos 3x = 1, 0 \le x \le 540°$

Q4) Solve the following equations with the use of a calculator.

a) $2 \sin x - 1 = 0, 0 \le x \le 2\pi$

b) $3 + 5 \sin x = 7, 0 \le x \le 2\pi$

Q5) Solve the following equations without the use of a calculator.

a) $\tan x + \sqrt{3} = 0, 0 \le x \le 2\pi$

b) $\sqrt{2} \sin x + 1 = 0, 0 \le x \le 2\pi$

Q6) Solve the following equations for x with the use of a calculator.

a) $\cos 2x + 3 \cos x = -2, 0 \le x \le 360°$

b) $\sin 2x + \cos x = 0, 0 \le x \le 2\pi$

Q7) Solve the following equations for x without the use of a calculator.

a) $\cos 4x + 5 \cos 2x - 2 = 0, 0 \le x \le 180°$

b) $\cos 2x + 3 = 4 \cos x, 0 \le x \le 2\pi$

Trigonometric Equations – Solutions

Q1) a) $x = 19.5°$ and $x = 160.5°$

   b) $x = 26.6°$

Q2) a) $x = 225°$ and $x = 315°$

   b) $x = 30°$

Q3) a) $x = 32.25°$ and $x = 102.75°$

   b) $x = 0, 120°, 240°, 360°, 480°$

Q4) a) $x = \frac{\pi}{6}, \frac{5\pi}{6}$

   b) $x = 0.93, 2.21$

Q5) a) $x = \frac{\pi}{3}, \frac{5\pi}{3}$

   b) $x = \frac{5\pi}{4}, \frac{7\pi}{4}$

Q6) a) $x = 120°, 180°, 240°$

   b) $x = 0, \frac{7\pi}{6}, \frac{11\pi}{6}, 2\pi$

Q7) a) $x = 30°$ and $x = 150°$

   b) $x = 0, 2\pi$