Solving trigonometric equations

Solve the equation:

$$4\cos^2 x - 3 = 0$$

for $-\pi \le x \le \pi$.

Solve the equation:

$$2\cos(2x) = \sqrt{2}$$

for $-\pi \le x \le \pi$.

Solve the equation:

$$\sin x = \frac{\sqrt{3}}{2}$$

for $0 \le x \le 2\pi$.