

1.  $2 \cos x - 1 = 0$

$$2 \cos x = 1$$

$$\cos x = \frac{1}{2}$$

$$x = \frac{\pi}{3}, \frac{5\pi}{3}$$

3.  $\sin x - \frac{1}{2} = 0$

$$\sin x = \frac{1}{2}$$

$$x = \frac{\pi}{6}, \frac{5\pi}{6}$$

7.  $1 + \sqrt{3} \tan x = 0$

$$\sqrt{3} \tan x = -1$$

$$\tan x = \frac{-1}{\sqrt{3}}$$

$$x = \frac{5\pi}{6}, \frac{11\pi}{6}$$

9.  $5 \cos x + 11 = 4 \cos x + 12$

$$\cos x = 1$$

$$x = 0$$

11.  $9 \sin x - 1 = \sin x + 2$

$$8 \sin x = 3$$

$$\sin x = \frac{3}{8}$$

$$x = 0.384, 2.757$$

13.  $3 \tan x \sin x + \sin x = 0$

$$\sin x(3 \tan x + 1) = 0$$

$$\sin x = 0 \text{ OR } 3 \tan x + 1 = 0$$

$$x = 0, \pi \quad 3 \tan x = -1$$

$$\tan x = \frac{-1}{3}$$

$$x = 2.820, 5.961$$

$$x = 0, 2.820, \pi, 5.961$$

17.  $\angle A = 180 - 89 - 33 = 58$

$$\frac{\sin 58}{23} = \frac{\sin 33}{b} \quad \frac{\sin 58}{23} = \frac{\sin 89}{c}$$

$$b = \frac{23 \sin 33}{\sin 58} \quad c = \frac{23 \sin 89}{\sin 58}$$

$$b = 14.771$$

$$c = 27.117$$

21.  $\cos x < 0$

$$\frac{\pi}{2} < x < \frac{3\pi}{2}$$