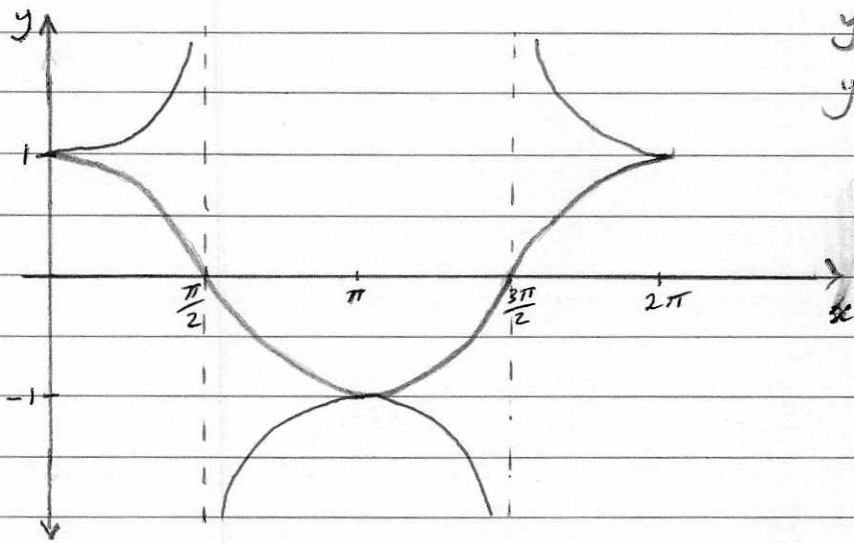
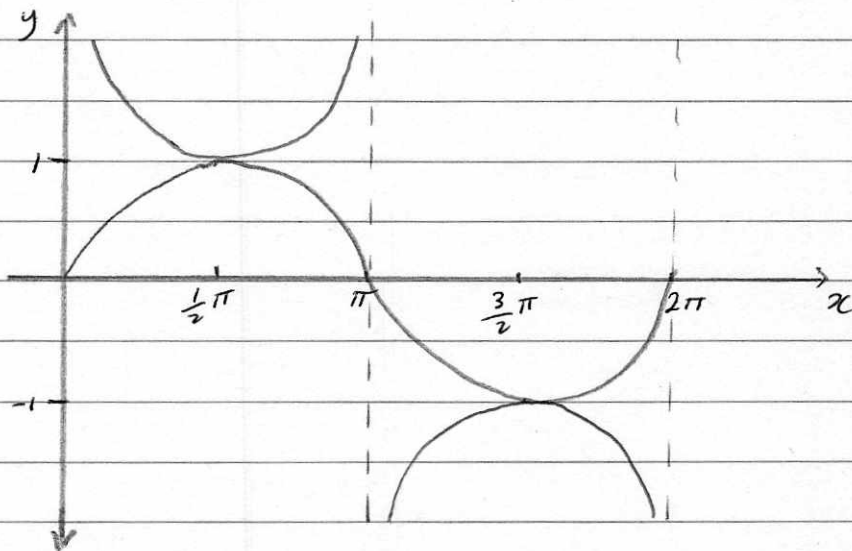


1 a/



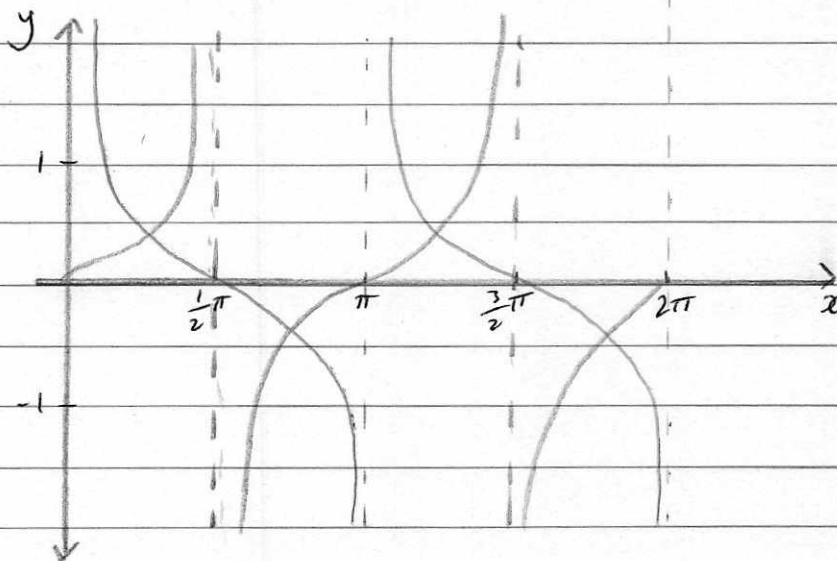
$$y = \cos x$$
$$y = \sec x$$

b/



$$y = \sin x$$
$$y = \operatorname{cosec} x$$

c/



$$y = \tan x$$
$$y = \cot x$$

$$\begin{aligned}
 2) \quad 2 \operatorname{cosec} \theta &= 5 \\
 \operatorname{cosec} \theta &= 5/2 \\
 \sin \theta &= 2/5 \\
 \theta &= \sin^{-1}(2/5) \\
 &= 0.4115, \pi - 0.4115 \\
 &= \underline{0.412}, \underline{2.73}
 \end{aligned}$$

$$\begin{aligned}
 3) \quad 2 \cot x &= 3 \sec x \\
 \frac{2 \cos x}{\sin x} &= \frac{3}{\cos x} \\
 2 \cos^2 x &= 3 \sin x \\
 2(1 - \sin^2 x) &= 3 \sin x \\
 2 - 2 \sin^2 x &= 3 \sin x \\
 0 &= 2 \sin^2 x + 3 \sin x - 2 \\
 0 &= (2 \sin x - 1)(\sin x + 2) \\
 \sin x &= \frac{1}{2} \quad \sin x = -2 \\
 & \quad \quad \quad x \\
 x &= \underline{\frac{1}{6} \pi}, \underline{\frac{5}{6} \pi}
 \end{aligned}$$

$$\begin{aligned}
 4) \quad 5 \cos x + \cot x &= 0 \\
 5 \cos x + \frac{\cos x}{\sin x} &= 0 \\
 5 \cos x \sin x + \cos x &= 0 \\
 \cos x (5 \sin x + 1) &= 0 \\
 \cos x = 0 \quad \sin x = -1/5 \\
 x = \underline{\frac{1}{2} \pi}, \underline{-\frac{1}{2} \pi} \quad x = \underline{-0.20}, \underline{-2.94}, \underline{\cancel{2.94}}
 \end{aligned}$$

5)

$$\sec^2 x + 5 \sec x + 6 = 0$$

$$(\sec x + 2)(\sec x + 3) = 0$$

$$\sec x = -2 \quad \sec x = -3$$

$$\cos x = -\frac{1}{2} \quad \cos x = -\frac{1}{3}$$

$$x = \frac{2}{3}\pi, \frac{4}{3}\pi$$

$$x = \underline{120}, \underline{240} \quad x = \underline{109.5}, \underline{250.5}$$

6)

$$\cot^2 x = 9$$

$$\cot x = \pm 3$$

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

$$x = 18.4, 198.4$$

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

$$x = -18.4$$

$$= -18.4, 161.6, 341.6$$

$$x = \underline{18.4}, \underline{161.6}, \underline{198.4}, \underline{341.6}$$

7)

$$\sec(2\theta + 10) = -1.3$$

$$\cos(2\theta + 10) = -\frac{10}{13}$$

$$2\theta + 10 = 140.3, 219.7, -140.3, -219.7$$

$$\theta = \underline{65.1}, \underline{104.9}, \underline{-75.1}, \underline{-114.9}$$