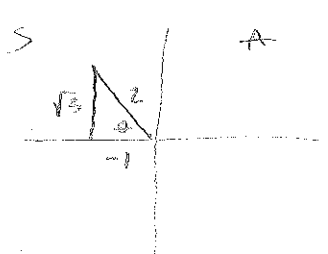


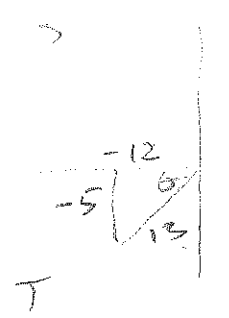
P 379 # 1, 5, 6, 10, 15-18, 27-32

① $\sin = \frac{\sqrt{3}}{2}$, $\cos x = -\frac{1}{2}$



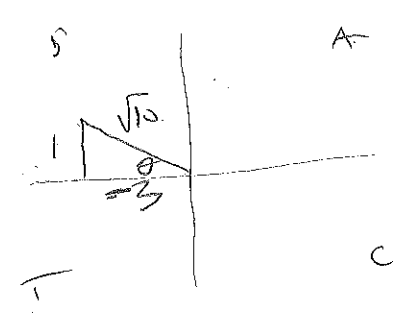
$\sin = \frac{\sqrt{3}}{2}$ $\csc = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$
 $\cos = -\frac{1}{2}$ $\sec = -2$
 $\tan = -\sqrt{3}$ $\cot = \frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$

⑤ $\tan x = \frac{5}{12}$, $\sec x = -\frac{13}{12} \Rightarrow \cos x = -\frac{12}{13}$



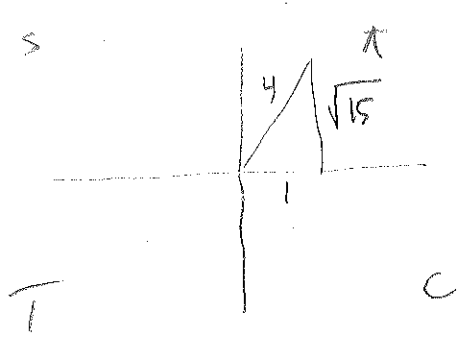
$\sin = -\frac{5}{13}$ $\csc = -\frac{13}{5}$
 $\cos = -\frac{12}{13}$ $\sec = -\frac{13}{12}$
 $\tan = \frac{5}{12}$ $\cot = \frac{12}{5}$

⑥ $\cot \phi = -3$, $\sin \phi = \frac{\sqrt{10}}{10}$
 $\Rightarrow \tan = -\frac{1}{3}$



$\sin \phi = \frac{\sqrt{10}}{10}$ $\csc \phi = \sqrt{10}$
 $\cos \phi = -\frac{3}{\sqrt{10}} = -\frac{3\sqrt{10}}{10}$ $\sec \phi = -\frac{\sqrt{10}}{3}$
 $\tan \phi = -\frac{1}{3}$ $\cot = -3$

⑩ $\sec x = 4$, $\sin x > 0$
 $\cos x = \frac{1}{4}$



$\sin x = \frac{\sqrt{15}}{4}$ $\csc x = \frac{4}{\sqrt{15}} = \frac{4\sqrt{15}}{15}$
 $\cos x = \frac{1}{4}$ $\sec x = 4$
 $\tan x = \sqrt{15}$ $\cot x = \frac{\sqrt{15}}{15}$

$$\textcircled{15} \sec x \cos x$$

$$= \frac{1}{\cos x} \cos x = 1 \quad \textcircled{D}$$

$$\textcircled{16} \tan x \csc x$$

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

$$= \frac{\sin x}{\cos x} \left(\frac{1}{\sin x} \right) = \sec x \quad \textcircled{A}$$

$$\textcircled{17} \cot^2 x - \csc^2 x = -1 \quad \textcircled{B}$$

$$\textcircled{18} (1 - \cos^2 x)(\csc x)$$

$$\sin^2 x \left(\frac{1}{\sin x} \right) = \sin x \quad \textcircled{F}$$

27-32

$$\textcircled{27} \cot \theta \sec \theta$$

$$\frac{\cos \theta}{\sin \theta} \cdot \frac{1}{\cos \theta} = \csc \theta$$

$$\textcircled{28} \cos \beta \tan \beta = \cos \beta \left(\frac{\sin \beta}{\cos \beta} \right) = \sin \beta$$

$$\textcircled{29} \sin \phi (\csc \phi - \sin \phi) = \sin \phi \left(\frac{1}{\sin \phi} - \sin \phi \right)$$

$$= 1 - \sin^2 \phi = \cos^2 \phi$$

$$\textcircled{30} \sec^2 x (1 - \sin^2 x) = \frac{1}{\cos^2 x} \cos^2 x = 1$$

$$\textcircled{31} \frac{\cot x}{\csc x} = \frac{\sin x}{\tan x} = \frac{\sin x \frac{\cos x}{\sin x}}{\frac{\sin x \cos x}{\sin x}} = \cos x$$

$$\textcircled{32} \frac{\csc \theta}{\sec \theta} = \frac{\cos \theta}{\sin \theta} = \cot \theta$$

p379 # 19, 20, 33-41, 48, 49, 53, 56, 58, 63

$$\textcircled{19} \frac{\sin(-x)}{\cos(-x)} = \frac{-\sin x}{+\cos x} = \underline{-\tan x} \quad \textcircled{E}$$

$$\textcircled{20} \frac{\sin(\pi/2 - x)}{\cos(\pi/2 - x)} = \frac{\cos x}{\sin x} = \underline{\cot x} \quad \textcircled{C}$$

$$\textcircled{33} \frac{1 - \sin^2 x}{\csc^2 x - 1} = \frac{\cos^2 x}{\cot^2 x} = \frac{\cos^2 x}{\frac{\cos^2 x}{\sin^2 x}} = \underline{\sin^2 x}$$

$$\textcircled{34} \frac{1}{\tan^2 x + 1} = \frac{1}{\sec^2 x} = \underline{\cos^2 x}$$

$$\textcircled{35} \sec a \cdot \frac{\sin a}{\tan a} = \frac{1}{\cos a} \cdot \cos a = \underline{1}$$

$$\textcircled{36} \frac{\tan^2 \theta}{\sec^2 \theta} = \cos^2 \theta \cdot \frac{\sin^2 \theta}{\cos^2 \theta} = \underline{\sin^2 \theta}$$

$$\textcircled{37} \cos(\pi/2 - x) \sec x = \sin x \cdot \frac{1}{\cos x} = \underline{\tan x}$$

$$\textcircled{38} \cot(\pi/2 - x) \cos x = \tan x \cos x = \frac{\sin x}{\cos x} \cdot \cos x = \underline{\sin x}$$

$$\textcircled{39} \frac{\cos 2y}{1 - \sin y} = \frac{1 - \sin^2 y}{1 - \sin y} = \frac{(1 - \sin y)(1 + \sin y)}{1 - \sin y} = \underline{1 + \sin y}$$

$$\textcircled{40} \cos t (1 + \tan^2 t) = \cos t (\sec^2 t) = \frac{\cos t}{\cos^2 t} = \frac{1}{\cos t} = \underline{\sec t}$$

$$\begin{aligned} \textcircled{41} \sin \beta \tan \beta + \cos \beta &= \sin \beta \frac{\sin \beta}{\cos \beta} + \cos \beta = \frac{\sin^2 \beta}{\cos \beta} + \frac{\cos^2 \beta}{\cos \beta} \\ &= \frac{1}{\cos \beta} = \underline{\sec \beta} \end{aligned}$$

$$\begin{aligned} \textcircled{48} \cos^2 x + \cos^2 x \tan^2 x &= \cos^2 x (1 + \tan^2 x) \\ &= \cos^2 x (\sec^2 x) \\ &= \cos^2 x \left(\frac{1}{\cos^2 x} \right) = \underline{1} \end{aligned}$$

$$(49) \frac{\sec^2 x - 1}{\sec x - 1} = \frac{(\sec x - 1)(\sec x + 1)}{\sec x - 1} = \sec x + 1$$

$$(53) \sin^4 x - \cos^4 x = (\sin^2 x - \cos^2 x)(\sin^2 x + \cos^2 x) \\ = (\sin^2 x - \cos^2 x) \cdot 1 = \sin^2 x - \cos^2 x$$

$$(56) \sec^3 x - \sec^2 x - \sec x + 1 \\ = \sec^3 x - \sec^2 x - (\sec x - 1) \\ = \sec^2(\sec x - 1) - (\sec x - 1) \\ = (\sec x - 1)(\sec^2 x - 1) = (\sec x - 1)\tan^2 x$$

$$(58) (\cot x + \csc x)(\cot x - \csc x) \\ = \cot^2 x - \csc^2 x = -1$$

$$(63) \frac{\cos x}{1 + \sin x} + \frac{1 + \sin x}{\cos x} = \frac{\cos^2 x + (1 + \sin x)^2}{(1 + \sin x)(\cos x)} \\ = \frac{\cos^2 x + 1 + 2\sin x + \sin^2 x}{(1 + \sin x)\cos x} = \frac{2 + 2\sin x}{(1 + \sin x)\cos x} \\ = \frac{2(1 + \sin x)}{(1 + \sin x)\cos x} - \frac{2}{\cos x} = 2\sec x$$