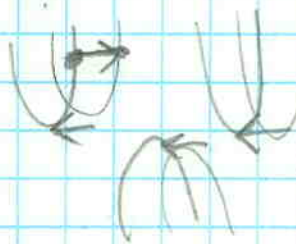


5-1-3

317: 17-21, 27, 31, 32, 34, 38, 45

17. $\csc \theta = -1.24 \rightarrow \sec(\theta - \frac{\pi}{2})$

 $= +\sec(\frac{\pi}{2} - \theta)$
 $= +\csc \theta = \boxed{-1.24}$

$\sec - \theta = \sec \theta$

18. $\cos \theta = 0.61 \rightarrow \sin(\theta - \frac{\pi}{2})$

$= -\sin(\frac{\pi}{2} - \theta)$

$= -\cos \theta = \boxed{-0.61}$

Switch $\theta - \frac{\pi}{2}$
to $-(\frac{\pi}{2} - \theta)$

19. $\tan \theta = -1.52 \rightarrow \cot(\theta - \frac{\pi}{2})$

$= -\cot(\frac{\pi}{2} - \theta)$

$= -\tan \theta = \boxed{1.52}$

20. $\sin \theta = 0.18 \rightarrow \cos(\theta - \frac{\pi}{2})$

$= \cos(-(\frac{\pi}{2} - \theta)) = \cos(\frac{\pi}{2} - \theta)$

$= \sin \theta = \boxed{0.18}$

21. $\cot x = 1.35 \rightarrow \tan(x - \frac{\pi}{2})$

$= -\tan(\frac{\pi}{2} - x)$

$= -\cot x = \boxed{-1.35}$

$$27. \frac{\csc x \cos x + \cot x}{\sec x \cot x}$$

$$= \frac{\left(\frac{1}{\sin x}\right)(\cos x) + \left(\frac{\cos x}{\sin x}\right)}{\left(\frac{1}{\cos x}\right)\left(\frac{\cos x}{\sec x}\right)} = \frac{2\left(\frac{\cos x}{\sin x}\right)}{\left(\frac{1}{\sin x}\right)}$$

$$\frac{2 \cos x}{\sin x} \cdot \frac{\sin x}{1} = \underline{\underline{2 \cos x}}$$

$$31. \cot x - \cos^3 x \csc x$$

$$= \left(\frac{\cos x}{\sin x}\right) - (\cos^3 x)\left(\frac{1}{\sin x}\right) = \frac{\cos x - \cos^3 x}{\sin x}$$

factor Pythag

$$= \frac{\cos x (1 - \cos^2 x)}{\sin x} = \frac{\cos x (\sin^2 x)}{\sin x} = \boxed{\cos x \sin x}$$

$s^2 + c^2 = 1$
-c - c

$$32. \frac{\cos x}{\sec x + 1} + \frac{\cos x}{\sec x - 1} = \frac{\cos x (\sec x - 1) + \cos (\sec x + 1)}{(\sec x + 1)(\sec x - 1)}$$

$$\frac{\cos x \sec x - \cos x + \cos x \sec x + \cos}{\sec^2 x - 1}$$

$$t^2 + 1 = \sec$$

$$= \frac{\cos x \left(\frac{1}{\cos x}\right) + \cos x \left(\frac{1}{\cos x}\right)}{\tan^2 x} = \frac{2}{\tan^2 x} = \boxed{2 \cot^2 x}$$

$$34. \frac{1}{\sec x + 1} + \frac{1}{\sec x - 1} = \frac{(\sec x - 1) + (\sec x + 1)}{(\sec x + 1)(\sec x - 1)}$$

$$\stackrel{t^2 + 1 = \sec^2}{-1 \quad -1} = \frac{2 \sec x}{\sec^2 x - 1} \quad \frac{2 \left(\frac{1}{\cos x}\right)}{\tan^2 x} = \frac{2 \left(\frac{1}{\cos x}\right)}{\left(\frac{\sin^2 x}{\cos^2 x}\right)} \times \left(\frac{\cos^2 x}{\sin^2 x}\right)$$

$$= \frac{2 \cos x}{\sin^2 x} = \frac{2 \cos x}{\sin x} \cdot \frac{1}{\sin x} = \boxed{2 \cot x \csc x}$$

$$38. \frac{\sin x}{\csc x - \cot x} \cdot \frac{(\csc x + \cot x)}{(\csc x + \cot x)}$$

$$\frac{\sin x (\csc x + \cot x)}{\csc^2 x - \cot^2 x} = \frac{\sin x \left(\frac{1}{\sin x}\right) + \sin x \left(\frac{\cos x}{\sin x}\right)}{\cot^2 x + 1 - \cot^2 x}$$

$$\cot^2 + 1 = \csc^2$$

$$= \boxed{\frac{1 + \cos x}{1}}$$

$$45. \frac{\cot^2 x \cos x}{\csc x - 1} \cdot \frac{(\csc x + 1)}{(\csc x + 1)}$$

$$= \frac{\cot^2 x \cos x (\csc x + 1)}{\csc^2 x - 1} = \frac{\cot^2 x \cos x (\csc x + 1)}{\cot^2 x}$$

$$\cot^2 + 1 = \csc^2$$

$$= \boxed{\cos x (\csc x + 1)}$$