1. $1+\dfrac{1}{\tan^2 x}=1+\cot^2 x$
2. $\dfrac{(1+\cos x)^2+\sin^2 x}{\sin x(1+\cos x)}=\dfrac{2+2\cos x}{\sin x(1+\cos x)}=\dfrac{2}{\sin x}=2\csc x$
3. $\dfrac{\cos x+\sin x}{\sin x\cos x}-\dfrac{1}{\cos x}=\dfrac{\cos x+\sin x-\sin x}{\sin x\cos x}=\dfrac{1}{\sin x}=\csc x$
4. $\dfrac{1-\cos^2 x}{\sin x\cos x}=\dfrac{\sin^2 x}{\sin x\cos x}=\dfrac{\sin x}{\cos x}=\tan x$
5. $\dfrac{2\cos^2 x}{\sin^2 x}-\dfrac{1}{\sin^2 x}=\dfrac{2\cos^2 x-1}{\sin^2 x}=\dfrac{\cos 2x}{\sin^2 x}$
6. $\sin\dfrac{3\pi}{2}\cos x-\cos\dfrac{3\pi}{2}\sin x=(-1)\cos x-(0)\sin x=-\cos x$
7. $\dfrac{3}{5}$
8. $\dfrac{44}{125}$
9. $\dfrac{10\sqrt{10}+6\sqrt{6}}{49}$
10. $\dfrac{-15-8\sqrt{15}}{49}$
11. $-\dfrac{7}{25}$
12. $-\dfrac{120}{169}$
13. $\dfrac{3}{\sqrt{13}}=\dfrac{3\sqrt{13}}{13}$
14. $\dfrac{\sqrt{2}+2}{4}$
15. $\dfrac{3}{8}-\dfrac{1}{2}\cos 2\theta+\dfrac{1}{8}\cos 4\theta$
16. $\dfrac{7\pi}{6},\dfrac{11\pi}{6}$
17. $\dfrac{\pi}{6},\dfrac{5\pi}{6},\dfrac{7\pi}{6},\dfrac{11\pi}{6}$
18. $\dfrac{\pi}{6},\dfrac{5\pi}{6},\dfrac{3\pi}{2}$

19. $0, \pi$

20. $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$

21. $\frac{3\pi}{8}, \frac{15\pi}{8}$

22. $1.8235, 4.4597$

23. $\frac{\pi}{6} + n\pi, \ \frac{5\pi}{6} + n\pi$

24. $\frac{\pi}{4} + n\pi$