$$e^{i\theta} = \cos\theta + i\sin\theta$$
$$e^{-i\theta} = \cos\theta - i\sin\theta$$

$$e^{i\theta} - e^{-i\theta} = 2i\sin\theta$$
$$\sin\theta = \frac{e^{i\theta} - e^{-i\theta}}{2i}$$
$$e^{2i\theta} - 2ie^{i\theta}\sin\theta - 1 = 0$$
$$e^{i\theta} = \frac{2i\sin\theta \pm \sqrt{4 - 4\sin^2\theta}}{2}$$
$$e^{i\theta} = i\sin\theta \pm \sqrt{1 - \sin^2\theta}$$
$$\theta = \frac{\ln\left(i\sin\theta \pm \sqrt{1 - \sin^2\theta}\right)}{i}$$

$$e^{i\theta} + e^{-i\theta} = 2\cos\theta$$
$$\cos\theta = \frac{e^{i\theta} + e^{-i\theta}}{2}$$
$$e^{2i\theta} - 2e^{i\theta}\cos\theta + 1 = 0$$
$$e^{i\theta} = \frac{2\cos\theta \pm \sqrt{4\cos^2\theta - 4}}{2}$$
$$e^{i\theta} = \cos\theta \pm \sqrt{\cos^2\theta - 1}$$
$$\theta = \frac{\ln\left(\cos\theta \pm \sqrt{\cos^2\theta - 1}\right)}{i}$$

$$\tan\theta = \frac{\sin\theta}{\cos\theta} = \frac{\frac{e^{i\theta} - e^{-i\theta}}{2i}}{\frac{e^{i\theta} + e^{-i\theta}}{2}} = \frac{-i\left(e^{i\theta} - e^{-i\theta}\right)}{e^{i\theta} + e^{-i\theta}} = \frac{-i\left(e^{2i\theta} - 1\right)}{e^{2i\theta} + 1}$$
$$e^{2i\theta}\tan\theta + \tan\theta = -ie^{2i\theta} + i$$
$$e^{2i\theta}(\tan\theta + i) + (\tan\theta - i) = 0$$
$$e^{i\theta} = \frac{\pm\sqrt{-4(\tan\theta + i)(\tan\theta - i)}}{2(\tan\theta + i)}$$
$$e^{i\theta} = \frac{\pm i\sqrt{\tan^2\theta + 1}}{\tan\theta + i}$$
$$\theta = \frac{\ln\left(\frac{\pm i\sqrt{\tan^2\theta + 1}}{\tan\theta + i}\right)}{i}$$

$$\sin\theta = \frac{1}{\csc\theta} = x \qquad \cos\theta = \frac{1}{\sec\theta} = x \qquad \tan\theta = \frac{1}{\cot\theta} = x$$
$$\csc\theta = \frac{1}{\sin\theta} \qquad \sec\theta = \frac{1}{\cos\theta} \qquad \cot\theta = \frac{1}{\tan\theta}$$
$$\theta = \sin^{-1}\frac{1}{\csc\theta} = \csc^{-1}x \qquad \theta = \cos^{-1}\frac{1}{\sec\theta} = \sec^{-1}x \qquad \theta = \tan^{-1}\frac{1}{\cot\theta} = \cot^{-1}x$$

$$\sin x = \sum_{n=0}^{\infty}\frac{(-1)^n x^{2n+1}}{(2n+1)!}$$
$$\sin(-x) = \sum_{n=0}^{\infty}\frac{(-1)^n (-x)^{2n+1}}{(2n+1)!}$$
$$= -\sum_{n=0}^{\infty}\frac{(-1)^n x^{2n+1}}{(2n+1)!} = -\sin x$$

$$\cos x = \sum_{n=0}^{\infty}\frac{(-1)^n x^{2n}}{(2n)!}$$
$$\cos(-x) = \sum_{n=0}^{\infty}\frac{(-1)^n (-x)^{2n}}{(2n)!}$$
$$= \sum_{n=0}^{\infty}\frac{(-1)^n x^{2n}}{(2n)!} = \cos x$$