4.2 Definitions and Graphs of Trigonometric Functions

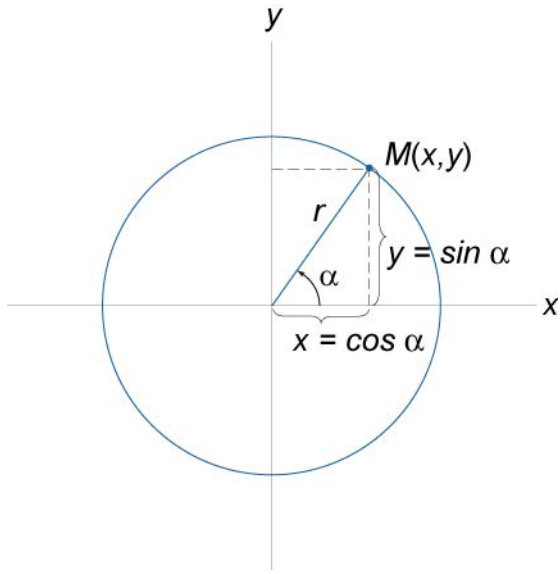

Figure 58.

367. $\sin\alpha = \frac{y}{r}$

368. $\cos\alpha = \frac{x}{r}$

369. $\tan\alpha = \frac{y}{x}$

370. $\cot\alpha = \frac{x}{y}$

371. $\sec \alpha = \dfrac{r}{x}$

372. $\operatorname{cosec} \alpha = \dfrac{r}{y}$

373. Sine Function

$y = \sin x\,,\ -1 \le \sin x \le 1.$

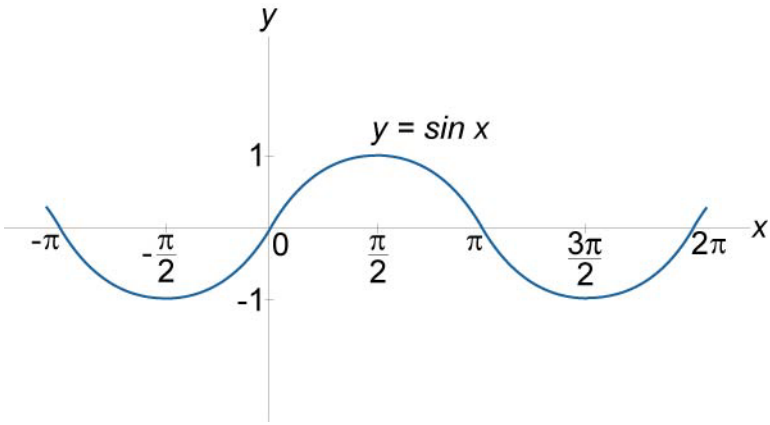

Figure 59.

374. Cosine Function

$y = \cos x\,,\ -1 \le \cos x \le 1.$

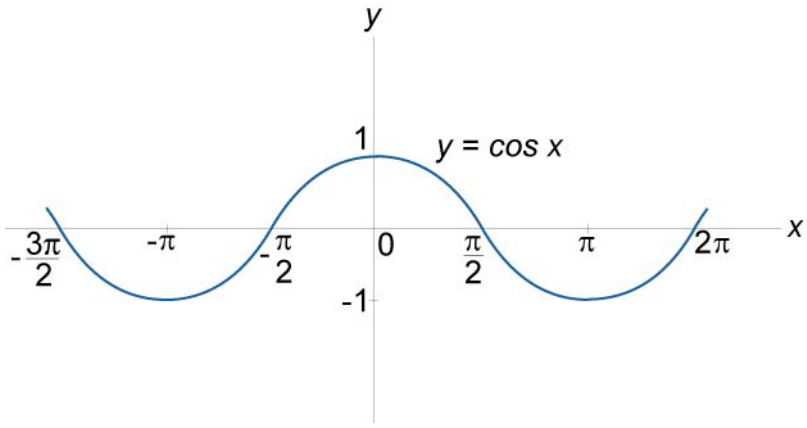

Figure 60.

375. Tangent Function

$$y = \tan x,\ x \neq (2k+1)\frac{\pi}{2},\ -\infty \leq \tan x \leq \infty.$$

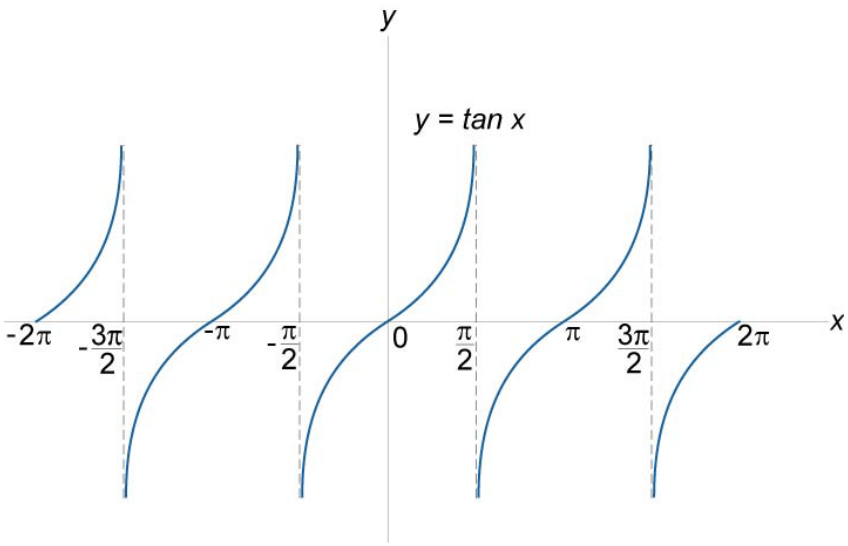

Figure 61.

376. Cotangent Function

$y = \cot x,\ x \neq k\pi,\ -\infty \leq \cot x \leq \infty.$

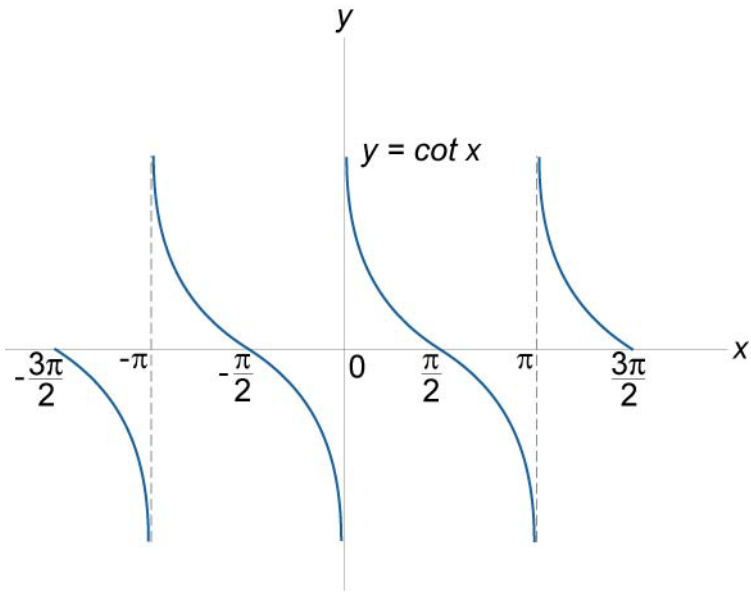

Figure 62.

377. Secant Function

$y = \sec x,\ x \neq (2k+1)\frac{\pi}{2}.$

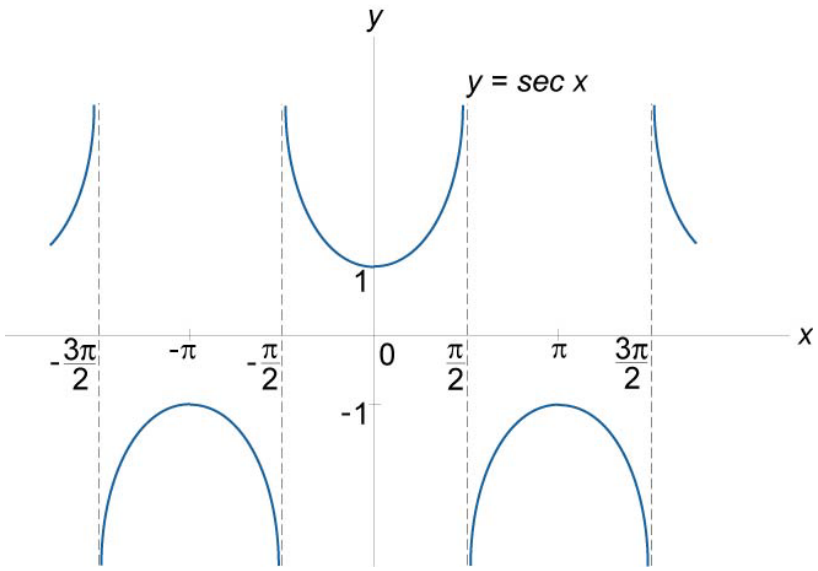

Figure 63.

378. Cosecant Function

$y = \operatorname{cosec} x,\ x \neq k\pi.$

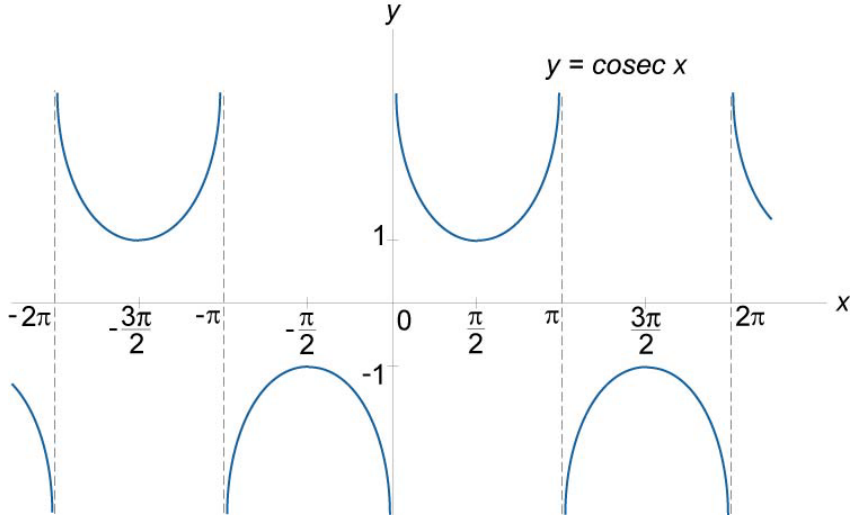

Figure 64.