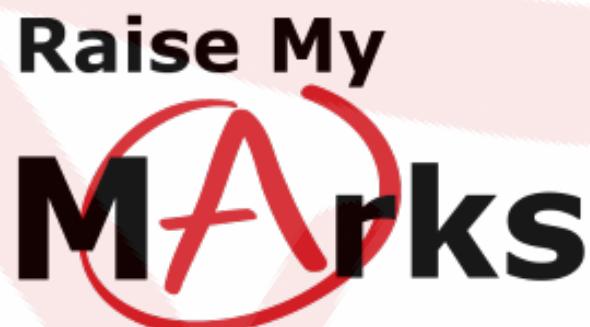


Transformations of Trigonometric Functions



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Transformation of Trigonometric functions

The general transformation of a trigonometric function is given below for sine and cosine.

$$\begin{aligned}f(x) &= a \sin[k(x - d)] + c, \text{ or} \\f(x) &= a \cos[k(x - d)] + c\end{aligned}$$

where,

- $|a|$ = amplitude
- d = phase shift
- c = vertical translation
- $\frac{2\pi}{k}$ = period

Exercises

1. Sketch the following.

a) $-2 \sin \theta + 1$

d) $\sin(\theta/2) + 1$

b) $\cos(\theta - \pi)$

e) $2 \cos(3\theta)$

c) $\sin \theta + 3$

f) $-\cos \theta - 1$

2. State the amplitude, phase shift, vertical translation and period of the functions in #1.