

Transformations of Trigonometric Functions

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2020

Transformation of Trigonometric functions

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

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

where,

$$|a| = \text{amplitude}$$

$$d = \text{phase shift}$$

$$c = \text{vertical translation}$$

$$\frac{2\pi}{k} = \text{period}$$

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.