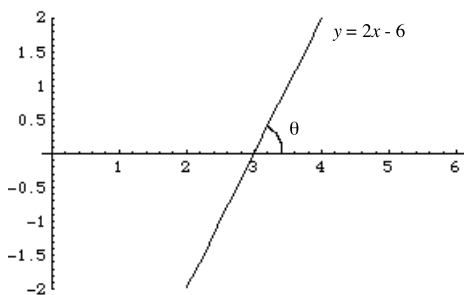


1. The line $y = 2x - 6$ intersects the x -axis and forms an angle measuring θ radians, as shown below. Find each of the following trigonometric function values without finding θ directly.

(a) $\tan \theta$

(b) $\sin \theta$

(c) $\cos \theta$



2. When an angle measuring α radians is placed in standard position (so that its vertex is at the origin and its initial side lies along the horizontal axis), its terminal side passes through the point $(2, 3)$. Find each of the following trigonometric function values without finding α directly.

(a) $\sin \alpha$

(b) $\cos(\alpha + 2\pi)$

(c) $\tan \alpha$

(d) $\sin(-\alpha)$

(e) $\cos(\alpha + \pi)$

(f) $\sin(13\pi - \alpha)$

(g) $\tan\left(\frac{3\pi}{2} - \alpha\right)$

3. Decide whether each of the following functions is even, odd, or neither. (Recall that a function f is *even* if $f(-x) = f(x)$ for all x in its domain and *odd* if $f(-x) = -f(x)$ for all x in its domain.) You may graph the functions to check your work, but you should justify your answers algebraically.

(a) $f(x) = 1 + \cos x$

(b) $f(x) = 1 + \sin x$

(c) $f(x) = \tan x$

(d) $f(x) = |\sin x|$

(e) $f(x) = \sin 2x$

(f) $f(x) = \sin x + \cos x$

4. A typical person might have a pulse of 70 heartbeats per minute and a blood pressure reading of 120 over 80, where 120 is the high pressure and 80 is the low. Model blood pressure as a function of time using a sinusoidal function $B(t)$, where t is time in minutes.

(a) What is the amplitude of $B(t)$?

(b) What is the period of $B(t)$?

(c) Write a possible formula for $B(t)$.