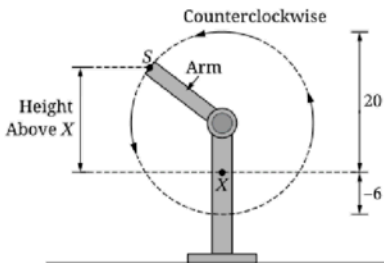


frq



Note: Figure not drawn to scale.

The figure shows a robotic arm rotating in a circular counterclockwise direction that completes one rotation every 2 seconds. Point  $S$  is on the tip of the arm, and point  $X$  does not move. As the arm rotates at a constant speed, the height of  $S$  above  $X$  periodically increases and decreases. At time  $t = 0$  seconds,  $S$  is at its lowest position, 6 inches directly below  $X$ . At its highest position,  $S$  is 20 inches directly above  $X$ .

The sinusoidal function  $h$  models the height of  $S$  above  $X$ , in inches, as a function of time  $t$ , in seconds. A positive value of  $h(t)$  indicates  $S$  is above  $X$ ; a negative value of  $h(t)$  indicates  $S$  is below  $X$ .