EXAMPLE 9 Hitting a Baseball

Kevin hits a baseball at 3 ft above the ground with an initial speed of 150 ft/sec at an angle of 18° with the horizontal. Will the ball clear a 20-ft wall that is 400 ft away?

$V = \langle 150\cos(18^\circ), 150\sin(18^\circ) \rangle$

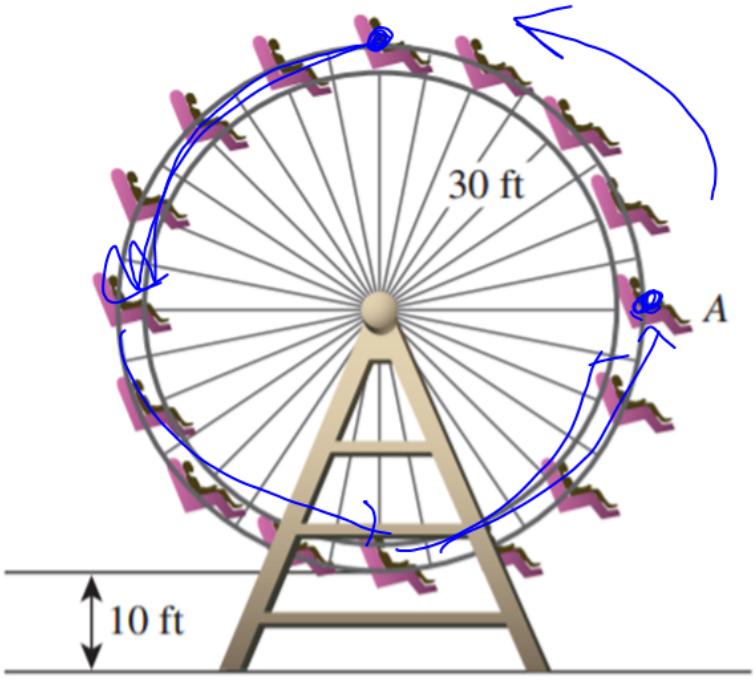
$x(t) = 150\cos(18^\circ)T$

$y(t) = -16T^2 + 150\sin(18^\circ)T + 3$

EXAMPLE 10 Riding on a Ferris Wheel

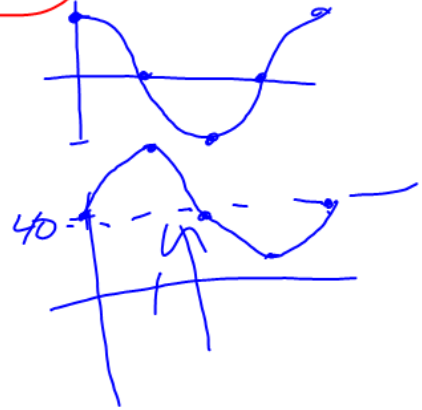
$P = \frac{2\pi}{B} = \frac{\pi}{5}$

Jane is riding on a Ferris wheel with a radius of 30 ft. As we view it in Figure 6.33, the wheel is turning counterclockwise at the rate of one revolution every 10 sec. Assume the lowest point of the Ferris wheel (6 o'clock) is 10 ft ~~above~~ the ground, and that Jane is at the point marked A (3 o'clock) at time $t = 0$. Find parametric equations to model Jane's path and use them to find Jane's position 22 sec into the ride.



$x(t) = 30\cos\left(\frac{\pi}{5}T\right)$

$y(t) = 30\sin\left(\frac{\pi}{5}T\right) + 40$



$(9.27, 68.5)$