

## Applications of Trigonometric Functions

### Practice Questions

The height of a person above the ground on a Ferris wheel is given by the function  $h(t) = 9\sin\left(\frac{\pi}{20}t - \frac{\pi}{2}\right) + 12$ , where  $h(t)$  is the height in meters of the person  $t$  seconds after getting on the ride.

① How long does it take the Ferris wheel to make one complete revolution?

- (A) 10s      (B) 20s      (C) 40s      (D) 60s

② How long, to the nearest second, after the rider gets on the Ferris wheel does the rider first reach a height of 18m?

- (A) 15s      (B) 20s      (C) 25s      (D) 28s

## Solving Trigonometric Equations.

### Practice Questions

① The complete solution set for the equation

$$\frac{2\sin^2 x - \sin x}{1 - \cos x} = 0, \quad 0 \leq x \leq 2\pi \text{ is}$$

- (A)  $\{0, \frac{1}{2}\}$       (B)  $\{0, \frac{\pi}{6}\}$       (C)  $\{\frac{\pi}{6}, \frac{5\pi}{6}, \pi\}$

- (D)  $\{0, \pi, \frac{\pi}{6}, \frac{5\pi}{6}, 2\pi\}$

② Determine the number of solutions to the equation

$$\sin 4x = 0, \quad 0 \leq x \leq 2\pi.$$