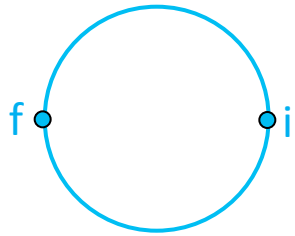
1. A child rides a pony on a circular track of radius 5.0 m. The displacement after the child has gone halfway around the track is

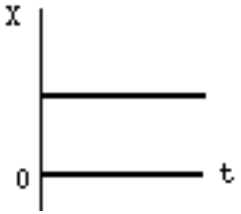
(a) 15.7 m (b) 10.0 m (c) 5.0 m (d) 31.4 m (e) 0.0 m

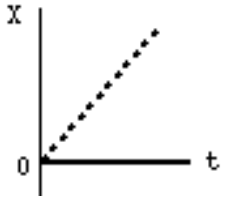
The displacement is the distance between the initial and final positions, denoted by the symbols i and f respectively. This distance is twice the radius, i.e., 10 m.

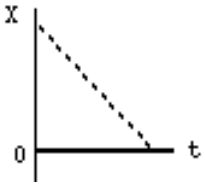
Correct answer is (b)

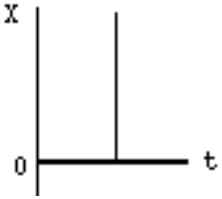


2. Which graph represents a body at rest

(a) 

(b) 

(c) 

(d) 

A body at rest has constant x. **Correct answer is (a)**

3. An important physics equation is $U=mgh$. If the units of U are $kg \bullet m^2 \bullet s^{-2}$, the units of m are kg, and the units of g are $m \bullet s^{-2}$, what are the units of h?

(a) s (b) s^2 (c) m^{-1} (d) m (e) kg

$[U] = [m]\,[g]\,[h] \rightarrow [h] = [U] / ([m]\,[g]) = kg \bullet m^2 \bullet s^{-2} / (kg \bullet m \bullet s^{-2}) = m$

Correct answer is (d)

4. A car is traveling at 45 km/h. The application of the brakes results is a constant deceleration of 5 m/s^2. How long will it take the car to stop?

(a) 0.4 s (b) 2.5 s (c) 5 s (d) 9 s

$v = v_0 + at$ $v=0$ $v_0 = 45km/h = 45{,}000\ m/(3600s) = 12.5\ m/sec$ $a = -5\ m/s2$

$\rightarrow t = -v_0/a = 12.5/5\ sec = 2.5\ sec$ **Correct answer is (b)**

5. If the position of a body is zero, its speed

(a) must be zero (b) can be anything (c) is zero only if the time is zero

(d) is zero only if the acceleration is zero

Correct answer is (b)