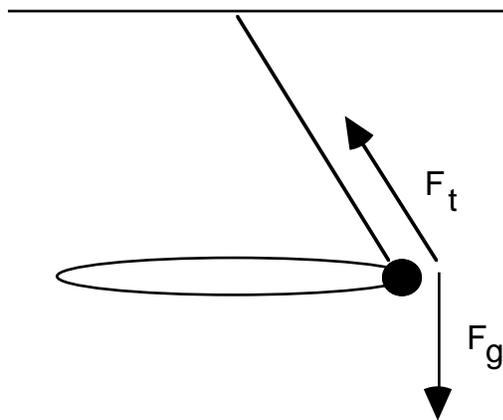


Phys12 Circular Motion : Quiz - 10

- 1) Why might a car skid as it negotiates a sharp corner ?
- a) Too much mass b) Insufficient mass c) Insufficient friction
d) Coefficient of friction is too large
- 2) What is the centripetal force required to keep a 0.10 kg mass moving in a circular path of radius 1.0 m with a period of 0.010 s ?
- a) 3.9×10^{-1} N b) 3.9×10^3 N c) 1.3×10^4 N d) 3.9×10^4
- 3) An object of mass 0.80 kg moves at a constant speed of 5.0 m/s in a circle of radius of 3.5 m. What is its acceleration in m/s^2 ?
- a) 0.0 b) 1.4 c) 5.7 d) 7.1
- 4) An object is moving in a circular path at a constant speed. If the radius of the path is tripled while the speed remains the same, by what factor will the centripetal force on the object be multiplied ?
- a) 1/9 b) 1/3 c) 3 d) 9
- 5)



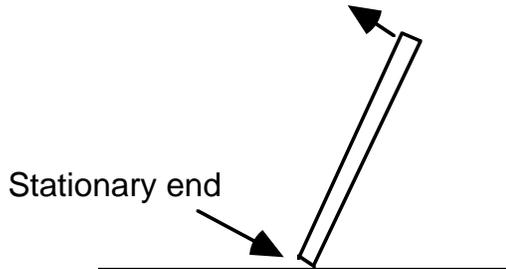
The bob of a pendulum revolves in a horizontal circle as shown above. The forces on it are the force of tension in the string and the force gravity on the bob. Which one of the **vectors** below represents the centripetal force ?

- a) F_g b) F_t c) $F_t - F_g$ d) $F_t + F_g$

6) What is the centripetal acceleration (in m/s^2) of a car moving at a constant speed of 12.5 m/s around a curve of radius 200.0 m ?

- a) 3.13×10^{-4} b) 6.25×10^{-2} c) 7.81×10^{-1} d) 0.00

7)



A rigid rod rotates so one end remains stationary and the other end has a centripetal acceleration of 12 m/s^2 . What is the centripetal acceleration of the midpoint of the rod (in m/s^2) ?

- a) 3.0 b) 6.0 c) 12 d) 24

8) What is the centripetal acceleration of the moon towards the earth in m/s^2 ?

- a) 1.2×10^{-5} b) 2.7×10^{-3} c) 1.6 d) 9.8

9) An object is revolving in a circle with a period of T . Its centripetal acceleration is a_c . If the same object is made to revolve in a circle with the same radius but with a period of $2T$, then the new acceleration is multiplied by :

- a) 4 b) 2 c) $1/2$ d) $1/4$

10) A mass on the end of a string revolves around a fixed point. The radius R can change, but the period T is constant. The centripetal acceleration is proportional to :

- a) a constant b) R c) $1/R$ d) $1/T^2$

Answers : 1) c, 2) d, 3) d, 4) b, 5) d, 6) c, 7) b, 8) b, 9) d, 10) b.