# One Stop for Physics Practice for NEET

Monday - Friday ; 11 AM

1 Series = Questions from Top Books

# Work, Energy & Power

## Vertical Circular Motion

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Tamanna Chaudhary
(Physics Expert)

# Tamanna Chaudhary

Expert in NEET UG

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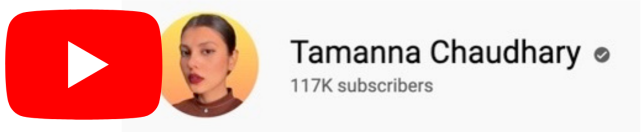
# One Stop for Physics Practice for NEET

## 1 Series = Questions from Top Books




### Details about the series-

- Guaranteed Question Practice of 7000+ Questions
- Classes: Monday to Friday at 11 AM
- PDF (without annotations) - Provided on my Telegram Channel
- Topic-wise, Chapter-wise, Unit-wise and Full Mock Questions included
- Can be followed by all NEET Aspirants



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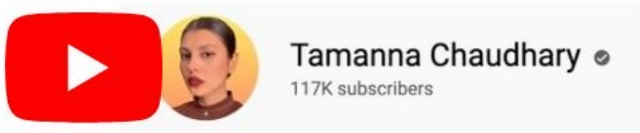


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Updated- 15 November'22

### Books Covered in this Session-

- HC Verma
- SL Arora
- DC Pandey
- TC Selected



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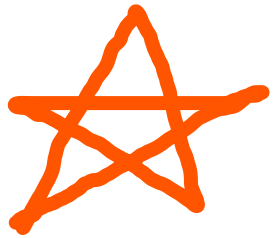
A stone of mass $m$ tied to a string of length $l$ is rotated in a circle with the other end of the string as the centre. The speed of the stone is $v$. If the string breaks, the stone will move

(a) towards the centre (b) away from the centre
(c) along a tangent (d) will stop.

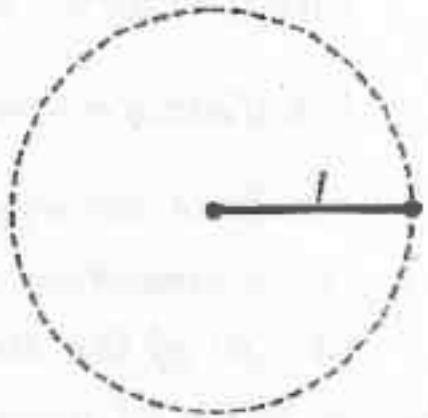
Three identical cars $A$, $B$ and $C$ are moving at the same speed on three bridges. The car $A$ goes on a plane bridge, $B$ on a bridge convex upward and $C$ goes on a bridge concave upward. Let $F_A$, $F_B$ and $F_C$ be the normal forces exerted by the cars on the bridges when they are at the middle of bridges.

(a) $F_A$ is maximum of the three forces.
(b) $F_B$ is maximum of the three forces.
(c) $F_C$ is maximum of the three forces.
(d) $F_A = F_B = F_C$.

The bob of a stationary pendulum is given a sharp hit to impart it a horizontal speed of $\sqrt{3\,gl}$. Find the angle rotated by the string before it becomes slack.



A small sphere of mass $m$ is suspended by a thread of length $l$. It is raised upto the height of suspension with thread fully stretched and released. Then the maximum tension in thread will be :



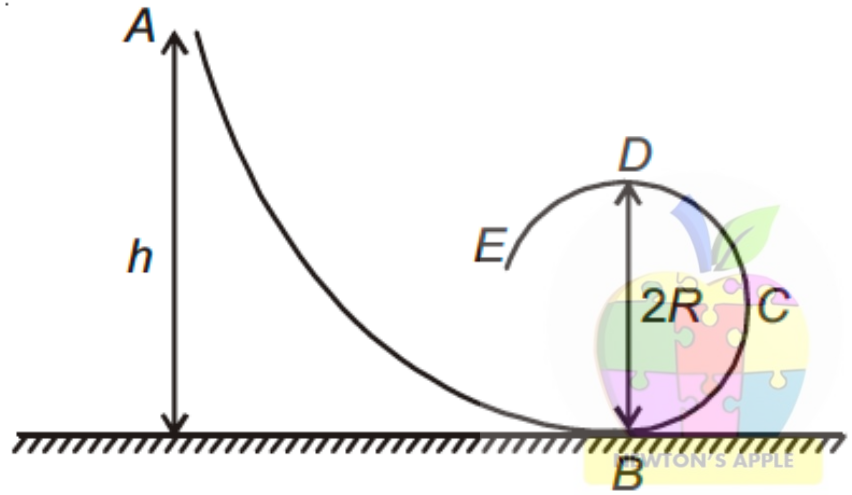

(a) $mg$ (b) $2mg$

(c) $3mg$ (d) $6mg$

EXAMPLE 81. A body weighing 0.4 $kg$ is whirled in a vertical circle making 2 revolutions per second. If the radius of the circle is 1.2 $m$, find the tension in the string, when body is (i) at the bottom of the circle, (ii) at the top of the circle.

EXAMPLE 83. A stone of mass 0.3 g is tied to one end of a string 0.8 m long and rotated in a vertical circle. At what speed of the ball will the tension in the string be zero at the highest point of the circle ? What would be the tension at the lowest point in this case ? Given $g = 9.8\ ms^{-2}$.

A frictionless track *ABCDE* ends in a circular loop of radius *R*. A body slides down the track from point *A* which is at a height 5 cm. Maximum value of *R* for the body to successfully complete the loop is



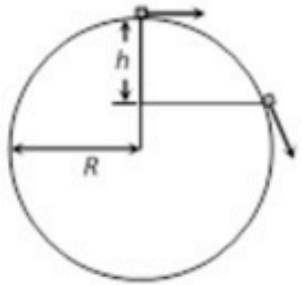

(1) 5 cm

(2) $\frac{15}{4}$ cm

(3) $\frac{10}{3}$ cm

(4) 2 cm

A particle originally at rest at the highest point of a smooth vertical circle is slightly displaced. It will leave the circle at a vertical distance h below the highest point such that




A) $h = R$

B) $h = \frac{R}{3}$

C) $h = \frac{R}{2}$

D) $h = \frac{2R}{3}$

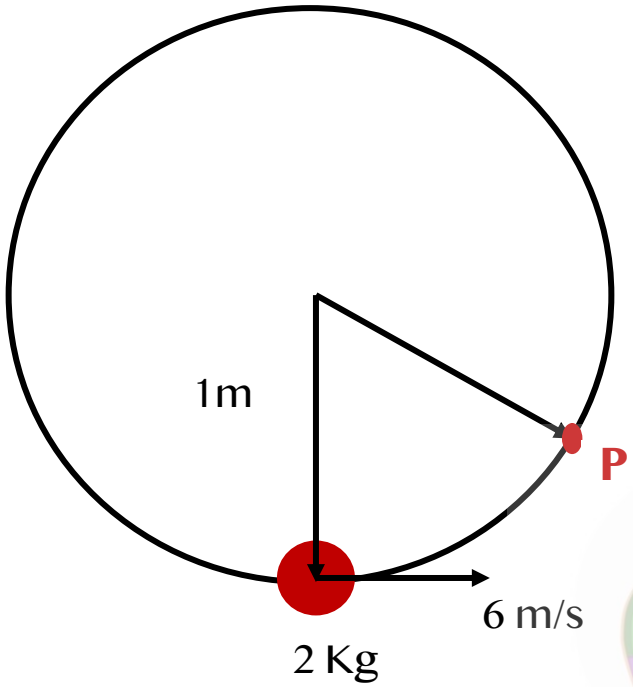
A body crosses the topmost point of a vertical circle with critical speed. Its centripetal acceleration, when the string is horizontal will be

A) 6 g

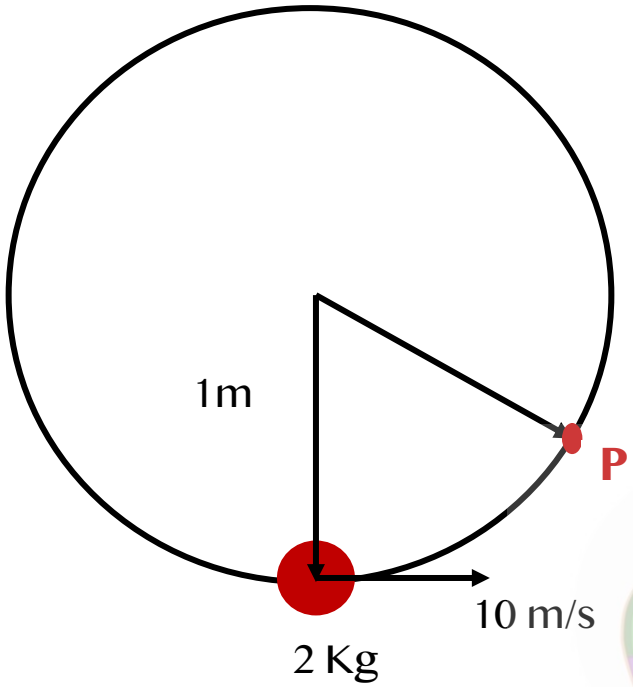
B) 3 g

C) 2 g

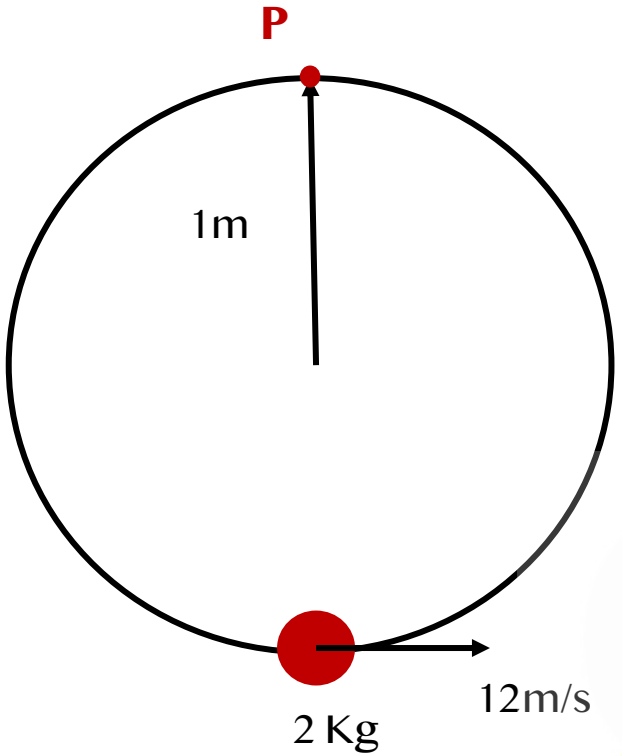
D) g




What is the velocity of the body at Point, P?




What is the Tension in the string at Point, P?




What is the Tension in the string at Point, P?