

# Rolling Friction Summary

ChatGPT said:



Here are 20 fill-in-the-blanks questions based on **Circular Motion** and **Rolling Friction** along with a separate key for the answers:

## Circular Motion

1. Circular motion is the motion of an object along the \_\_\_\_\_ of a circle.
2. The force responsible for keeping an object in circular motion is called \_\_\_\_\_.
3. Centripetal force is always directed towards the \_\_\_\_\_ of the circle.
4. The formula for centripetal force is  $F_c = \frac{mv^2}{R}$ .
5. An object moving in a circular path with constant speed still experiences \_\_\_\_\_ due to the change in direction.
6. The centripetal acceleration is given by the formula  $a_c = \frac{v^2}{R}$ .
7. A car negotiating a curve on a flat road depends on \_\_\_\_\_ between the tires and the road to provide the necessary centripetal force.
8. On a banked curve, the \_\_\_\_\_ force contributes to the centripetal force.
9. The optimum speed on a banked curve is given by  $v_0 = \sqrt{Rg \tan \theta}$ , where  $\theta$  is the \_\_\_\_\_ angle.
10. On a flat curve, the centripetal force is provided solely by the \_\_\_\_\_.

## Rolling Friction

11. Rolling friction occurs when an object rolls over a \_\_\_\_\_.
12. Rolling friction is generally \_\_\_\_\_ than sliding friction.
13. The primary cause of rolling friction is the deformation of the \_\_\_\_\_ at the point of contact.
14. Ball bearings are used to \_\_\_\_\_ rolling friction in machines.
15. The force that opposes rolling motion is much \_\_\_\_\_ compared to sliding or static friction.
16. Rolling friction depends on the material properties of both the rolling object and the \_\_\_\_\_.
17. In real-world applications, rolling friction is minimized by using a thin \_\_\_\_\_ of air.
18. Rolling friction is often expressed as a fraction of the \_\_\_\_\_ force.
19. The larger the contact area between the surfaces, the \_\_\_\_\_ the rolling friction.
20. Reducing the \_\_\_\_\_ of the object can help in minimizing rolling friction.

## Answer Key:

1. circumference
2. centripetal force
3. center
4. R
5. acceleration
6. R
7. friction
8. normal

9. **banking**
10. **friction**
11. **surface**
12. **smaller**
13. **surface**
14. **reduce**
15. **smaller**
16. **surface**
17. **cushion**
18. **normal**
19. **greater**
20. **weight**

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