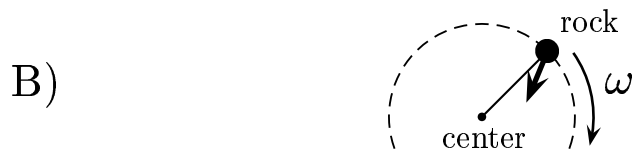
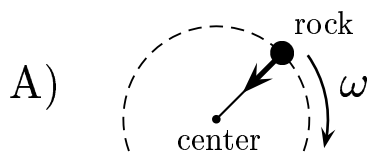
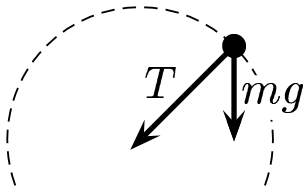


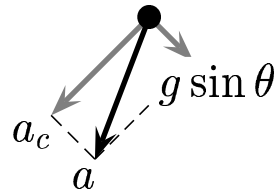
Given: A rock on a string is whirled fast enough (in a clockwise direction) to move in a vertical circle as shown. The rock has only enough velocity at the top of the loop to keep a very small tension in the string.

What is the direction “ \rightarrow ” of the rock’s acceleration?

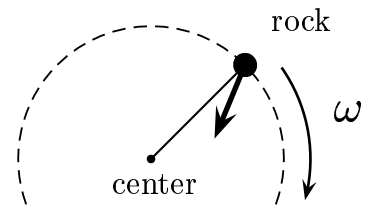




Free-body diagram



Vector diagram



Answer **B**

The tension along the string must point toward the center of the circle. The gravitational force is down.

The vector sum of the acceleration due to gravity and the centripetal acceleration is shown on the center above.

Answer **B**.

06.01-08 Rock on a String 2004-3-24