

Two Dimensional Rotation and Translation Dynamics

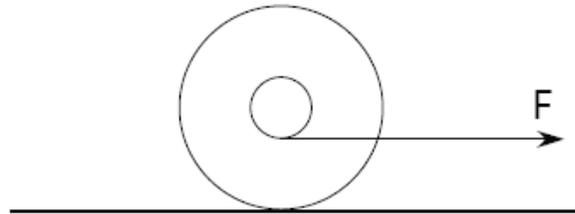
Concept Questions

Question 1: Rotation and Translation

Two cylinders of the same size and mass roll down an incline, starting from rest. Cylinder A has most of its mass concentrated at the rim, while cylinder B has most of its mass concentrated at the center. Which reaches the bottom first?

1. A
2. B
3. Both have the same

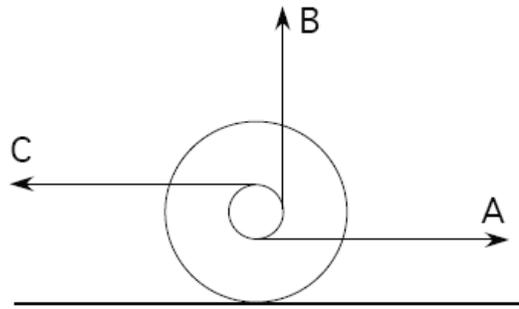
Question 2



Two disks are separated by a spindle of smaller diameter. A string is wound around the spindle and pulled gently. In which direction does it roll?

- 1) To the right, in the direction of F , winding up the string
- 2) To the left, opposite to F , unwinding the string
- 3) It does not roll, it slides to the right
- 4) It does not roll, it slides to the left

Question 3



Two disks are separated by a spindle of smaller diameter. A string is wound around the spindle and pulled gently. At what position of the string does the direction of rotation change?

- 1) At A
- 2) Somewhere between A and B
- 3) At B
- 4) Somewhere between B and C
- 5) At C
- 6) It always rolls to the right

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