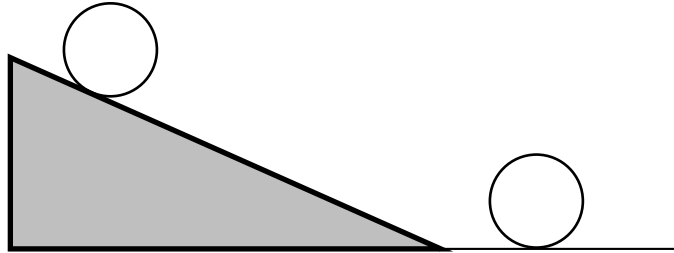


Consider the race of rolling down the inclined plane for the following 4 objects

- 1: Ring: mass = m , radius = r
- 2: Disk: mass = m , radius = r
- 3: Disk: mass = $\frac{m}{2}$, radius = $2r$
- 4: Disk: mass = $2m$, radius = $\frac{r}{2}$



Choose the correct set.

- A) fastest: 2 only and slowest: 1.
B) fastest: 2 only and slowest: 4.
C) fastest: 2 only and slowest: 3, 4.
D) fastest: 2, 3, 4 and slowest: 1.

Let : $k = \frac{I}{m r^2}$.

$$k_1 = \frac{m r^2}{m r^2} = 1, k_2 = \frac{m r^2}{2 m r^2} = k_3 = k_4 = 0.5.$$

The smaller is k , the greater is the speed.
So 2, 3 and 4 are faster, and 1 is the slowest.

Answer **D**.