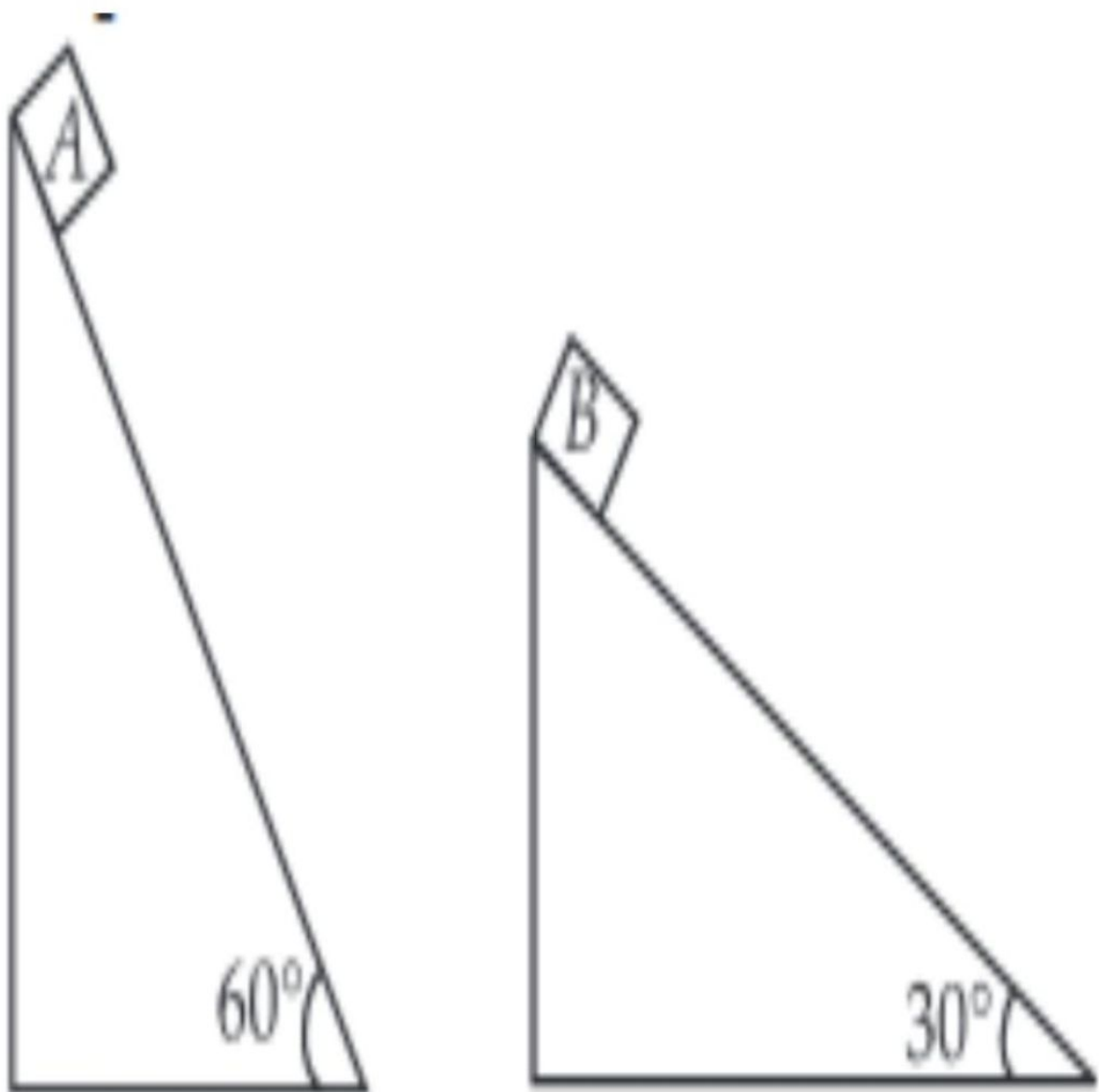


Two fixed frictionless inclined planes making an angle 30° and 60° with the vertical are shown in the figure. Two blocks A and B are placed on the two planes. What is the relative vertical acceleration of A with respect to B



Correct option is B)

$$mg\sin\theta = ma$$

$$\therefore a = g\sin\theta$$

where a is along the inclined plane

\therefore vertical component of acceleration is

$$g\sin^2\theta$$

\therefore Relative vertical acceleration of A with respect to B is

$$g[\sin^2 60 - \sin^2 30] = \frac{g}{2} = 4.9\text{m/s}^2 \text{ in vertical direction}$$