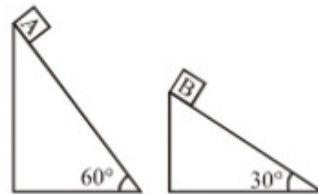


QUES 01:-

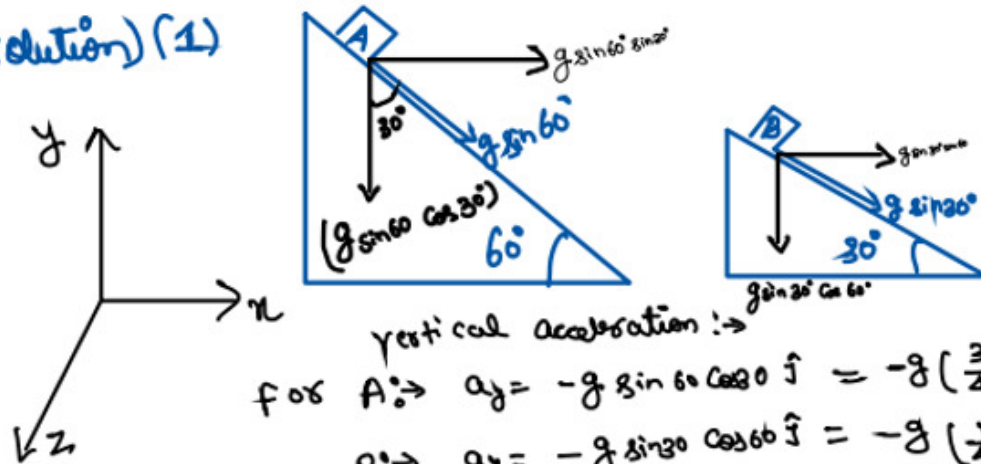
Two fixed frictionless inclined planes making an angle 30° and 60° with the vertical are shown in the figure. Two blocks A and B are placed on the two planes. What is the relative vertical acceleration of A with respect to B ? [AIEEE - 2010]



- (1) 4.9 ms^{-2} in vertical direction. (2) 4.9 ms^{-2} in horizontal direction
 (3) 9.8 ms^{-2} in vertical direction (4) Zero

NL0110

Solution) (1)



Vertical acceleration \Rightarrow
 for A: $a_y = -g \sin 60 \cos 60 \hat{j} = -g \left(\frac{3}{4}\right) \hat{j}$
 for B: $a_y = -g \sin 30 \cos 60 \hat{j} = -g \left(\frac{1}{4}\right) \hat{j}$
 (relative acceleration) $= |(a_y)_A - (a_y)_B|$
 $= \left(\frac{g}{2}\right) = 4.9 \text{ m/s}^2$
 \rightarrow vertical direction