

JEE MAIN LAWS OF MOTION — PSEUDO FORCE AND NON-INERTIAL FRAMES — PYQS

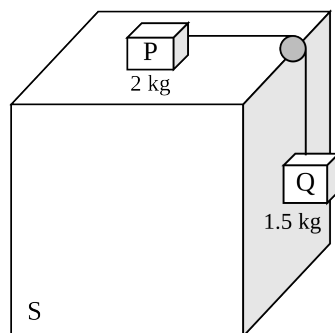
Max. Marks: 12

Questions: 3

Section A (MCQ) — 3 questions

- Q.1** Two blocks (P and Q) with respectively masses 2 kg and 1.5 kg are joined by a massless thread. These blocks are mounted on a frictionless pulley which is fixed on the edge of a cube (S), as shown in the figure below. Block P is positioned on the top surface which has no friction and block Q is in contact with side-surface, having coefficient of friction μ . The cube (S) moves towards the right with acceleration of $\frac{g}{2}$, where g is gravitational acceleration. During this movement the block P and Q remain stationary. The value of μ is _____. (take $g = 10 \text{ m/s}^2$)

[JEE Main 2026 (Online) 6th April Morning Shift]



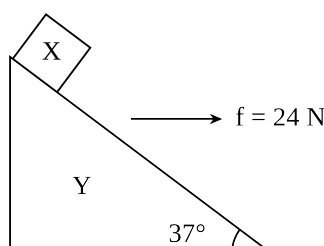
- (1) 0.33 (2) 0.67 (3) 1 (4) 0.5

Scan or tap for the full solution



- Q.2** A wedge Y with mass of 10 kg and all frictionless surfaces and the inclined surface making 37° with horizontal. A block X with mass 2 kg is placed at the highest point of the wedge as shown in figure is at rest. At $t = 0$ wedge (Y) is pulled toward right with constant force (f) of 24 N. Taking the block X at rest at $t = 0$, the time taken by it to slide down 8.8 m on the slope, while Y is on the move, is _____. (take $\tan(37^\circ) = 3/4$ and $g = 10 \text{ m/s}^2$)

[JEE Main 2026 (Online) 5th April Morning Shift]



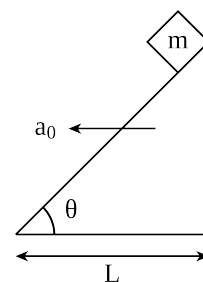
- (1) 2 (2) 4 (3) $\sqrt{2}$ (4) $2\sqrt{2}$

Scan or tap for the full solution



- Q.3** A small block of mass m slides down from the top of a frictionless inclined surface, while the inclined plane is moving towards left with constant acceleration a_0 . The angle between the inclined plane and ground is θ and its base length is L . Assuming that initially the small block is at the top of the inclined plane, the time it takes to reach the lowest point of the inclined plane is _____.

[JEE Main 2026 (Online) 28th January Evening Shift]



- (1) $\sqrt{\frac{2L}{g \sin \theta - a_0 \cos \theta}}$
 (2) $\sqrt{\frac{4L}{g \sin 2\theta - a_0(1 + \cos 2\theta)}}$
 (3) $\sqrt{\frac{2L}{g \sin 2\theta - a_0(1 + \cos 2\theta)}}$
 (4) $\sqrt{\frac{4L}{g \cos^2 \theta - a_0 \sin \theta \cos \theta}}$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3							
Ans.	2	1	2							