YAKEEN NEET 2.0

2026

Laws of Motion

PHYSICS | Lecture 06

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Topics to be covered

1. NLM question (Part 02)
2.
3.
4.

Breakfast Quiz

Q → $y = x^2 \cos\theta$

Soln

$x = 2 \pm .2$

$\theta = 37^\circ \pm 2^\circ$

find % error in y.

$\frac{\Delta y}{y} \times 100 = 20 + \frac{314}{120}$

$= 20 + 2.6 = \underline{22.6}$

$\ln y = 2\ln x + \ln\cos\theta$

$\frac{1}{y}dy = \frac{2}{x}dx + \frac{1}{\cos\theta}(-\sin\theta)\,d\theta$

$\frac{\Delta y}{y} = \frac{2\Delta x}{x} - (\tan\theta)\Delta\theta$

$\frac{\Delta y}{y} = \frac{2\Delta x}{x} + (\tan\theta)\Delta\theta$ (error)

$\frac{\Delta y}{y} = 2 \times \frac{.2}{2} + (\tan 37^\circ) \times 2 \times \frac{\pi}{180}$

$= .2 + \frac{3}{4} \times \frac{2\pi}{180} = .2 + \frac{\pi}{120}$

Q

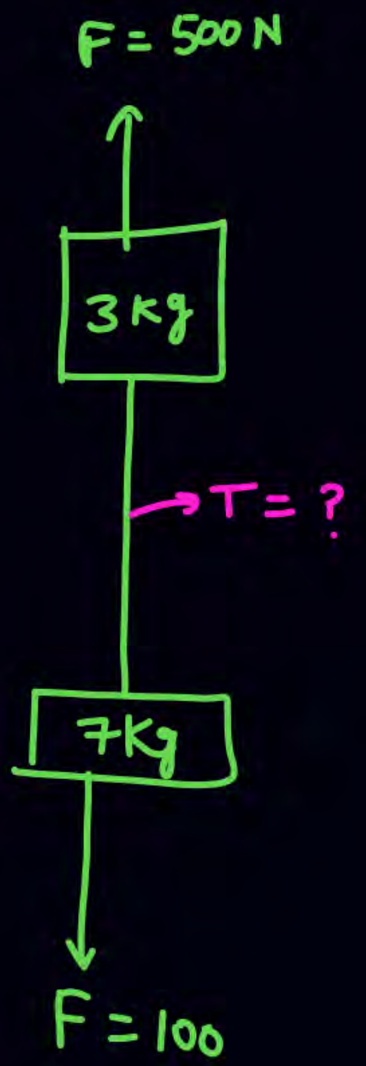
find acc. of each block.

Sol $a = \frac{1000 - 200}{15} = \frac{800}{15} = \frac{160}{3} = 53.33$

$a = \frac{1000 - 200 - 150}{15} = \frac{650}{15}$

$a = \frac{130}{3} = \underline{43.33}$

Q



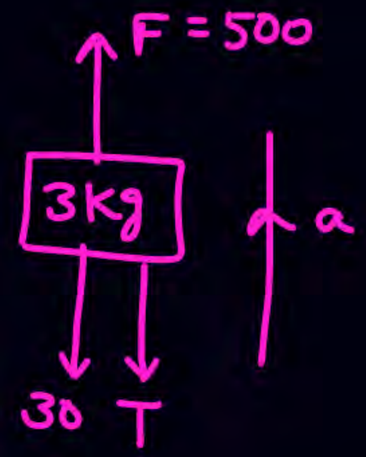
Sol^n

$$a = \frac{500 - 100 - 100}{10} = 30$$

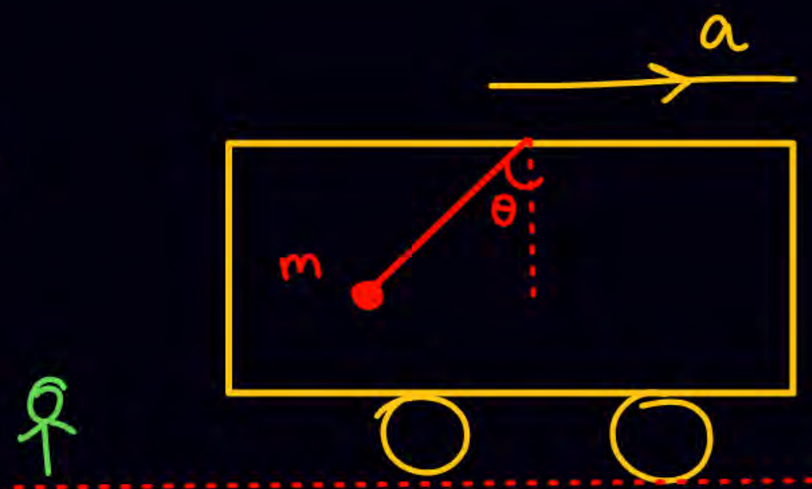
$500 - 30 - T = 3 \cdot a$

$470 - T = 3 \times 30$

$\boxed{T = 380}$



Q



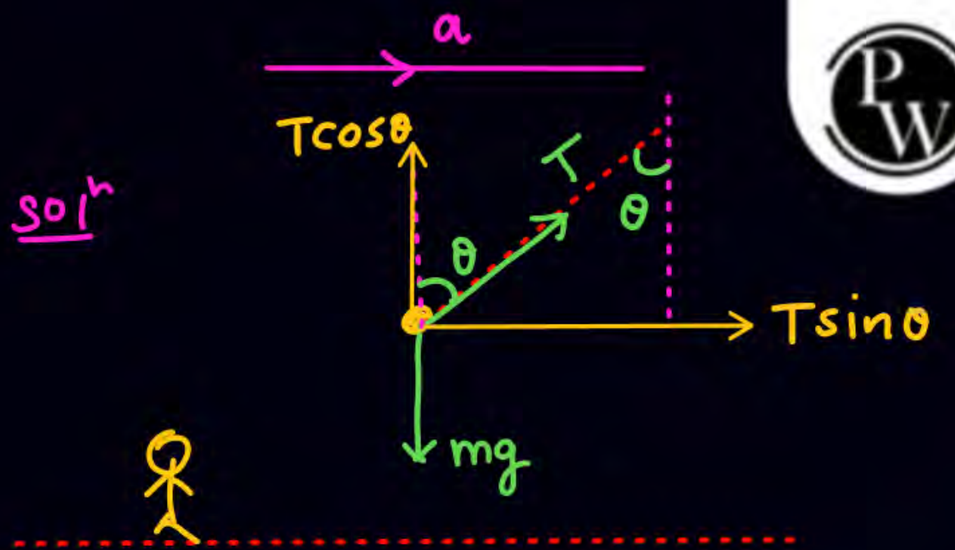
θ is const wrt car.

find $\theta = ?$

$$\cot\theta = \frac{g}{a}$$

$$a = \frac{g}{\cot\theta} = g\tan\theta$$

Soln

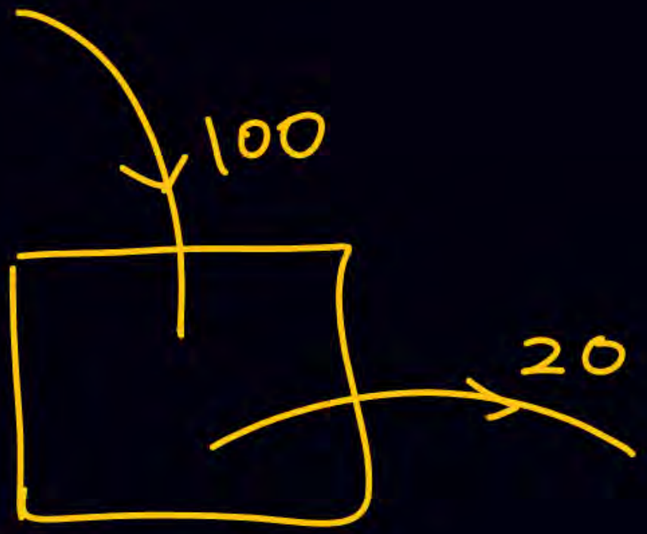


$T\cos\theta = mg$

$T\sin\theta = ma$

$$\tan\theta = \frac{a}{g}$$

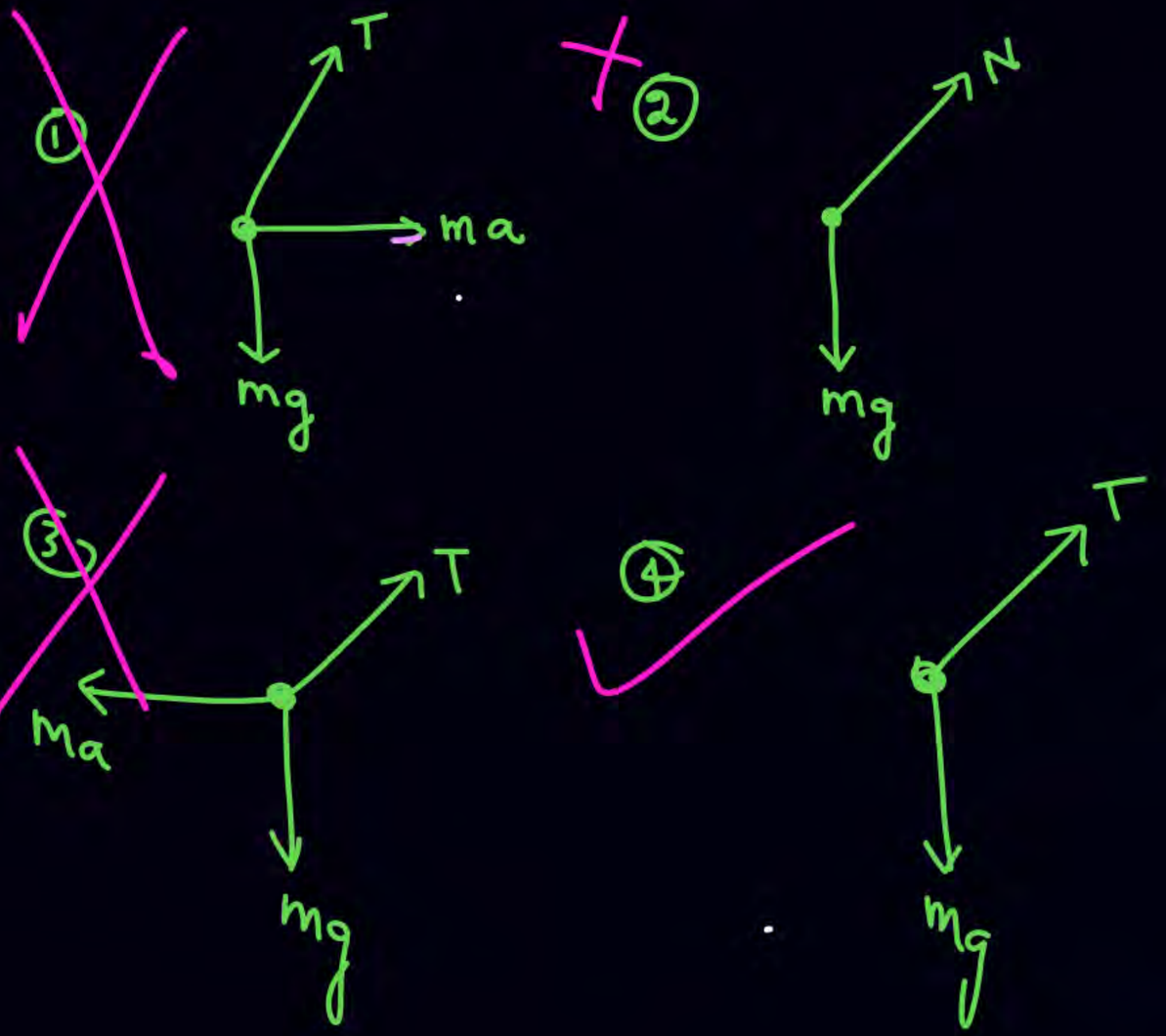
$$a = g\tan\theta$$

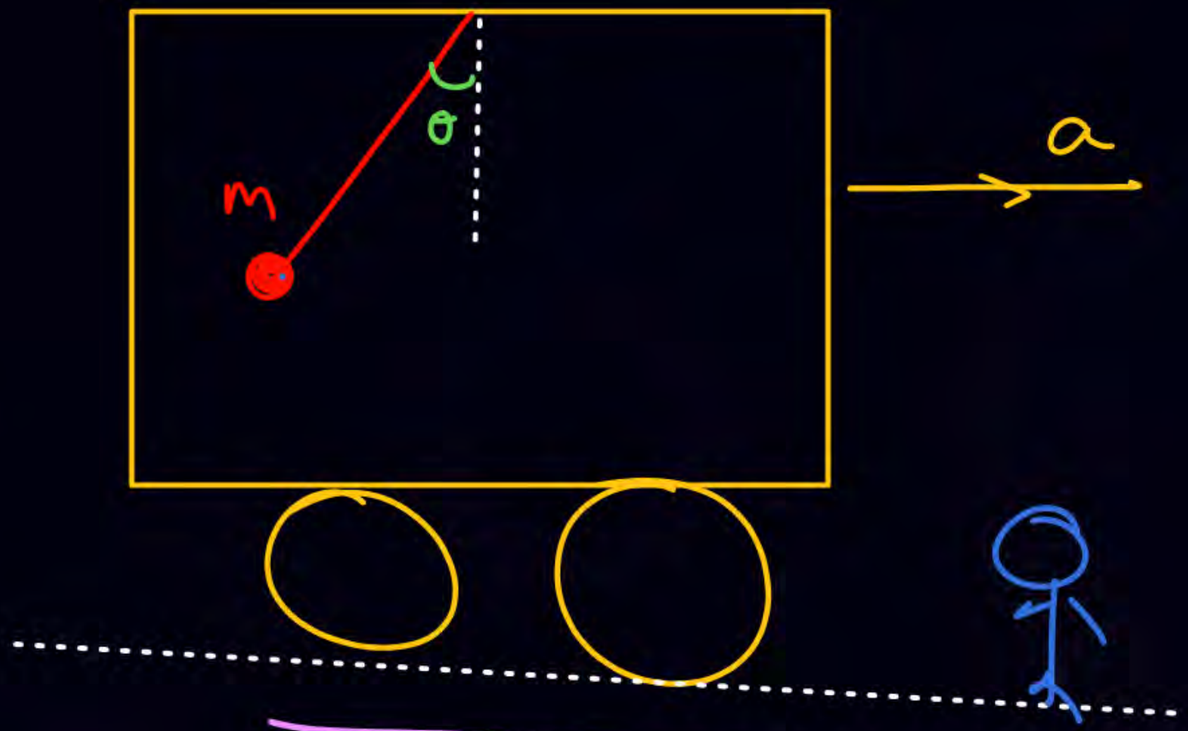


+100
−20
+80
160

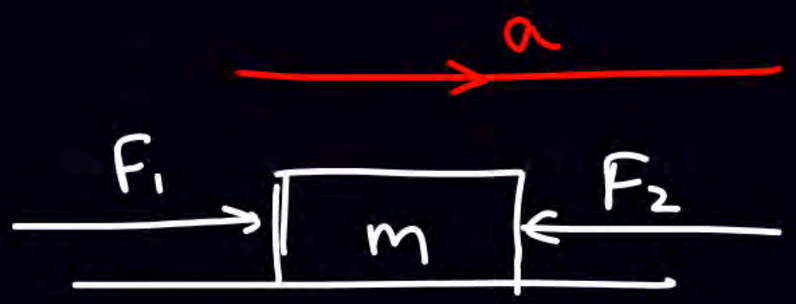
+100
−20
80

Q Which of the option is correct for FBD of m in ground frame.



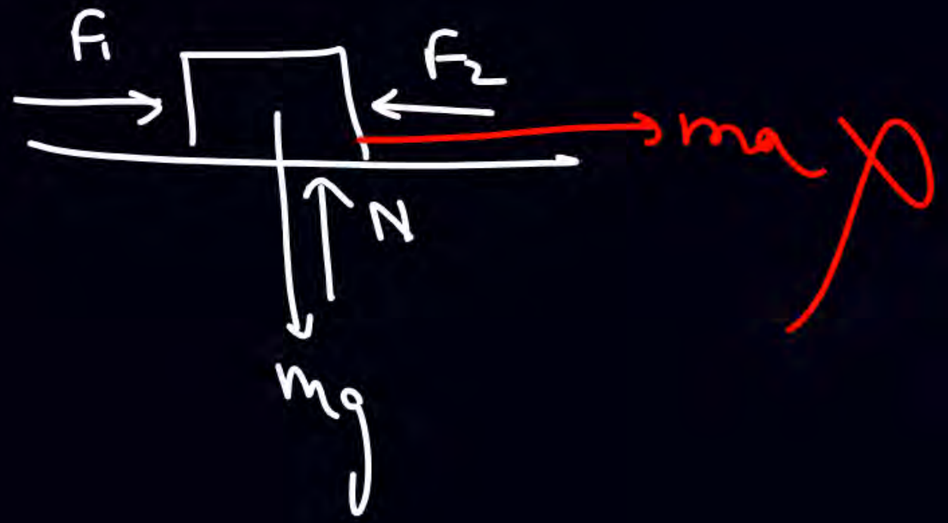


$$Skc = F_{net} = ma$$

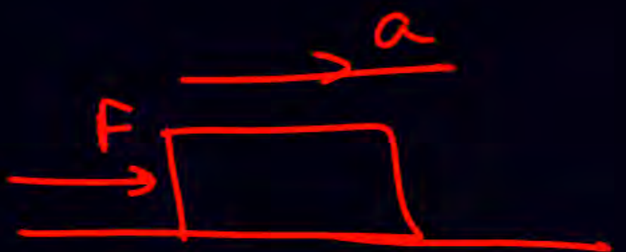


$$F_1 - F_2 = (F_{net})_{ext} = ma$$

FBD



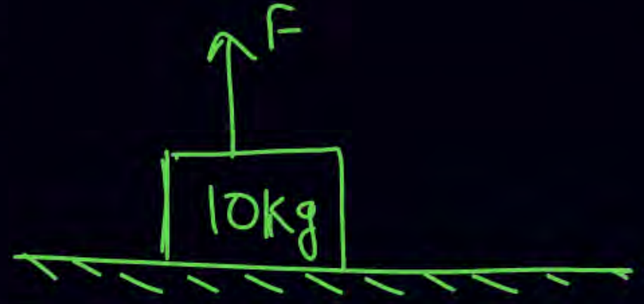
Q



उठने वाले सवाल Uthne wale sawaal (Lift off)

① Find f_{min} so that block lift off from ground.

$g = 10$



Sol^n

$F > mg$

$F > 100$

$F + N = 100$

$N = 0$

$F = 100$

$F = 100.0000000\underline{1}$

$F = 100.0000000000000000\underline{1}$

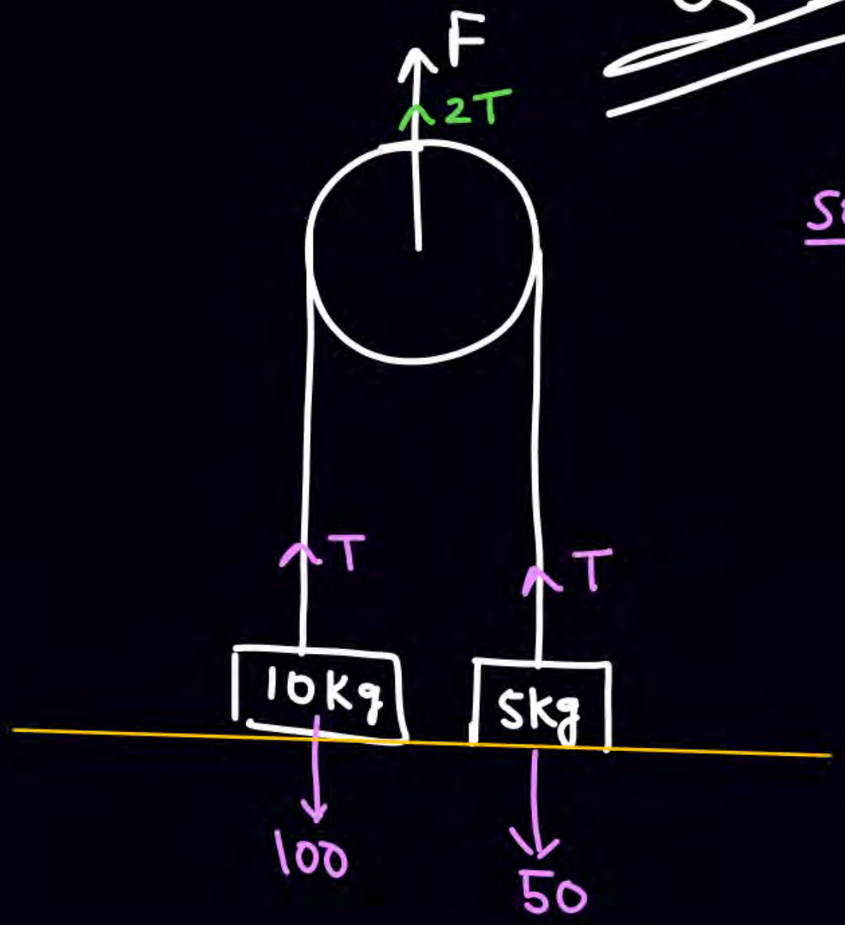
$F = 100.0000000000000000000\underline{1}$

Exam में Best any

$F_{min} = 100$

क्योंकि Ans तो 100 se thoda sa jyada hai

Q



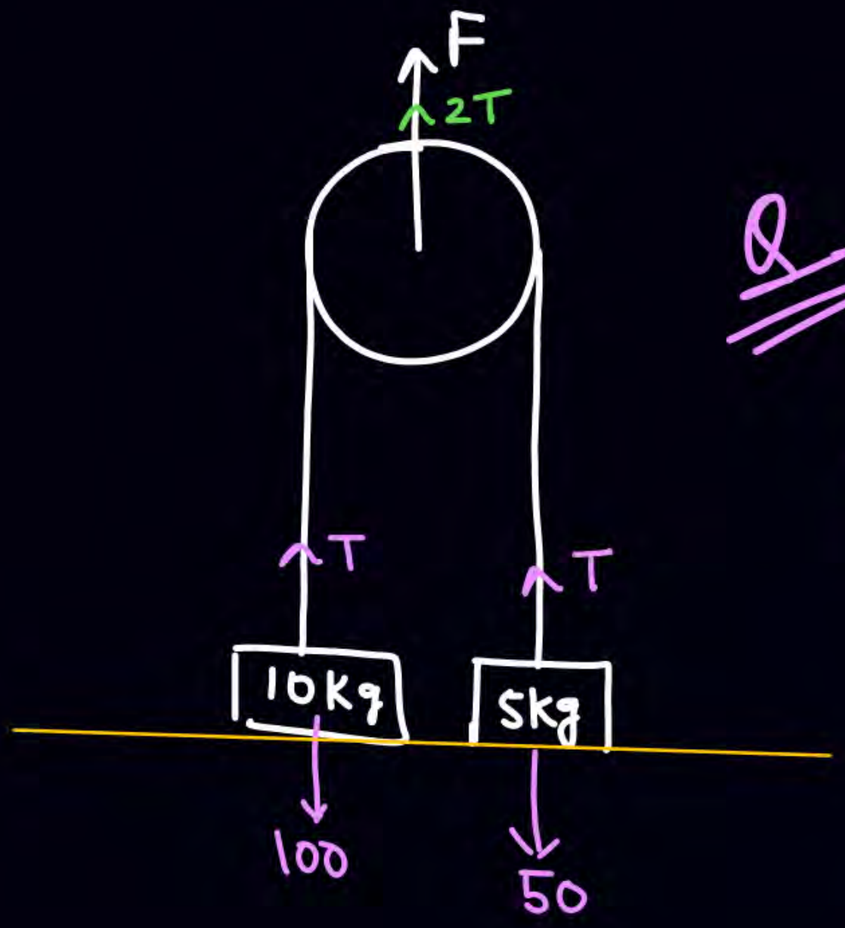
Q

Find F_{min} so that 5kg block lift off

Sol^n $T = 50$

$F = 2T = 2 \times 50 = 100\ N$

Q

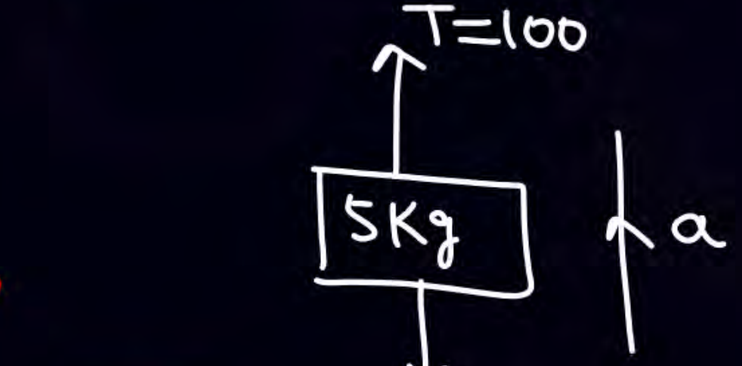


Q

Find Fmin so that 10kg block lift offs also find acc. of 5kg block when 10kg block lift off.

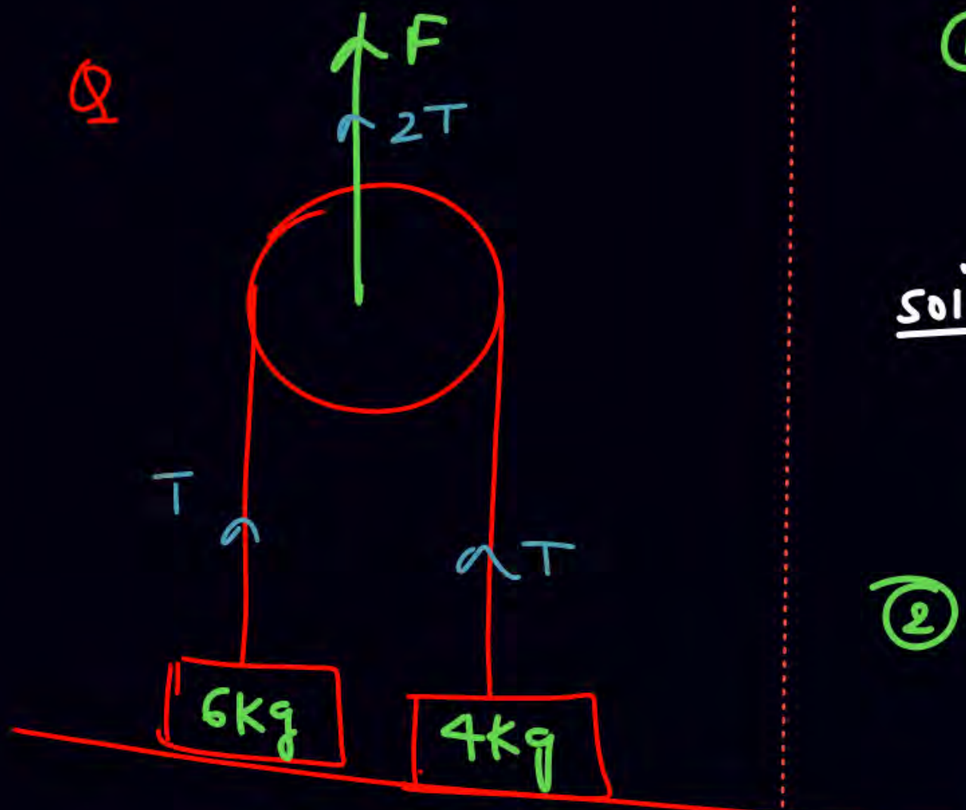
$T = 100$

$F = 2T = 200$



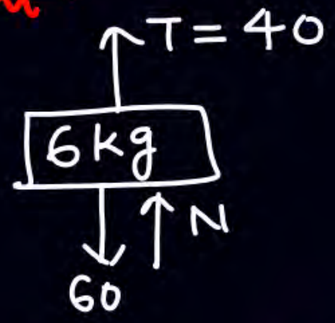
$$a = \frac{100 - 50}{5} = 10$$

Q



① Fmin so that 4kg lift off.
Also find normal force b/w 6kg & ground at this moment.

Sol $T = 40$, $F = 2T = 80$



(6kg) $\Rightarrow 40 + N = 60$

$\boxed{N = 20\,N}$

② Fmin so that 6kg lift off. also find acc of 4kg when 6kg is about to lift off.

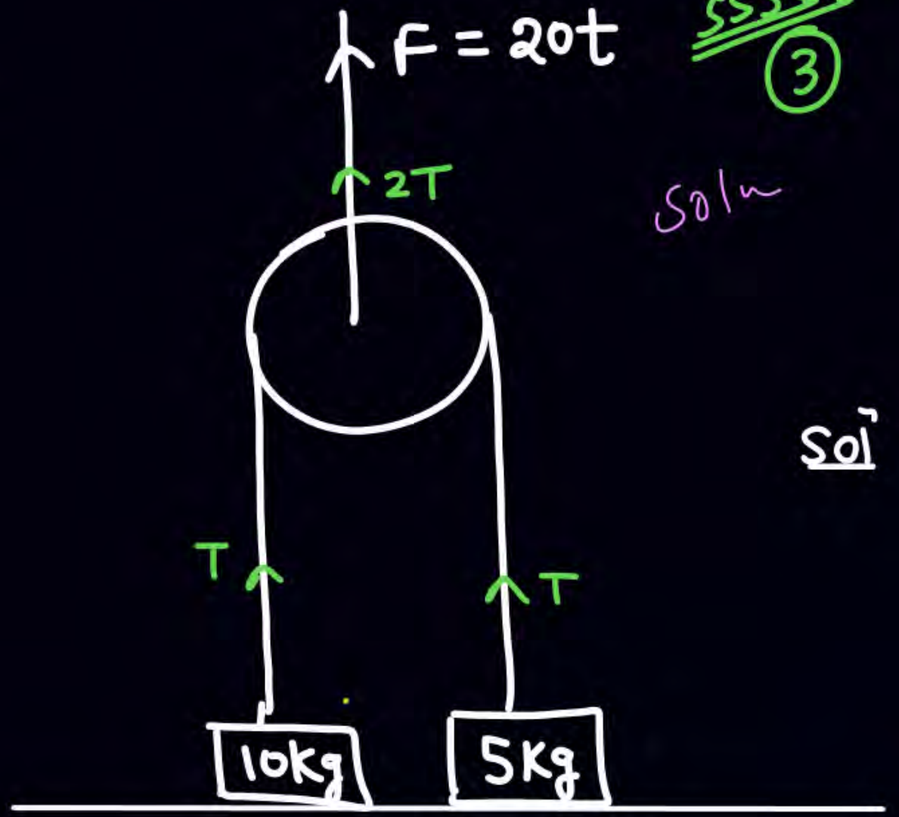
Sol $T = 60$

$F = 2T = 2 \times 60$

$\boxed{F = 120}$

$a_{4kg} = \frac{T - 40}{4} = 5$

Q



SSSP (3)

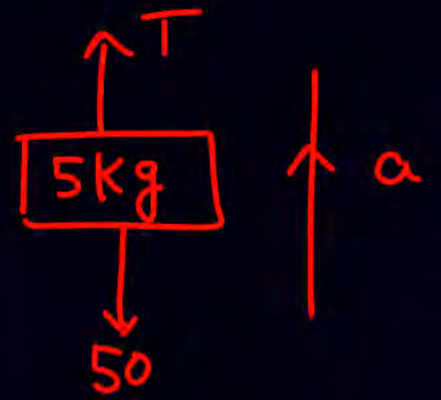
Soln

find velocity of 5kg block and its height above ground when 10kg block lift off.

Sol

$2T = 20t$

$\boxed{T = 10t}$



$a = \frac{T-50}{5} = \frac{10t-50}{5}$

$a = 2t - 10$

10kg कब उठेगा ⇒

$T = 100$

$200 = 20t$

$(t = 10\,sec)$

$t = 10$ पर v kya hai.

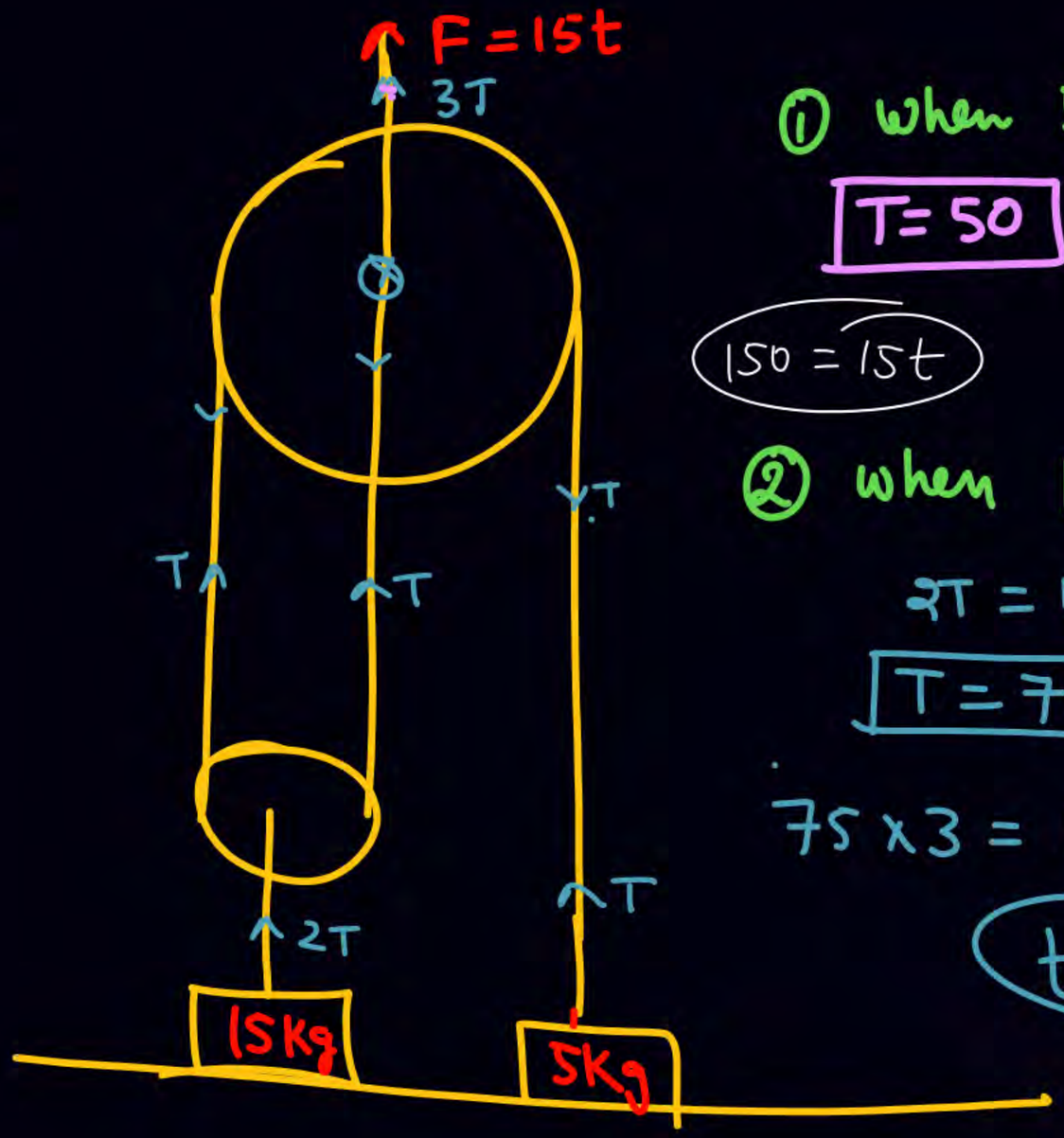
$\frac{dv}{dt} = (2t-10)$

$dv = (2t-10)dt$

$$\int_0^v dv = \int_5^{10} (2t - 10)\, dt$$

$$v = 2\frac{t^2}{2} - 10t = \left(t^2 - 10t\right)\Big|_5^{10} = \checkmark$$

Q



① when 5kg block lift off.

$T = 50$

$3T = 15t$

$3 \times 50 = 15t$, $t = 10\,sec$

$150 = 15t$

② when 15kg block lift off.

$2T = 150$

$T = 75$

$75 \times 3 = 15t$

$t = 15\,sec$

An empty plastic box of mass m is found to accelerate up at the rate of $g/6$ when placed deep inside water. How much sand should be put inside the box so that it may accelerate down at the rate of $g/6$?

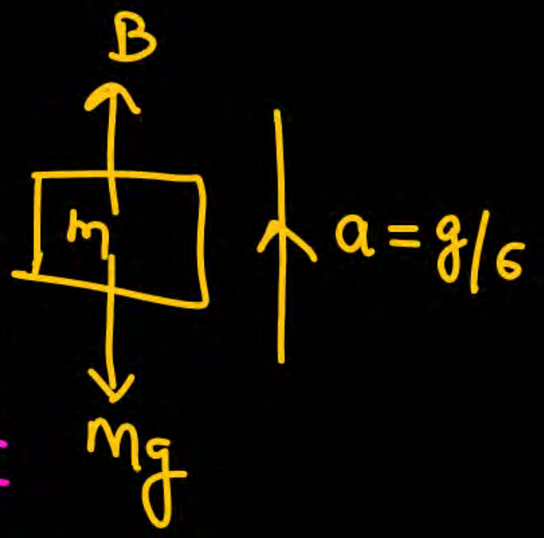
$$B - mg = m\frac{g}{6}$$

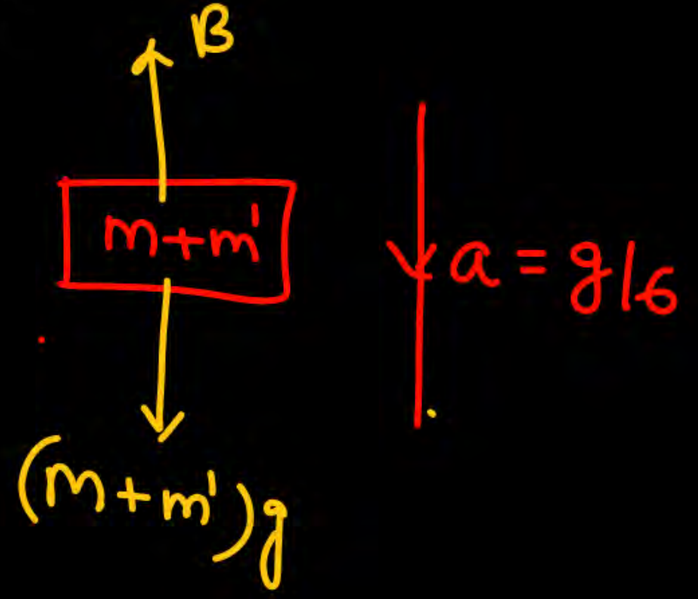
$$(m+m')g - B = (m+m')\frac{g}{6}$$

$$m'g = \frac{mg}{6} + \frac{mg}{6} + \frac{m'g}{6}$$

$$\frac{5}{6}m'g = \frac{2mg}{6}$$

$$m' = 2m/5$$

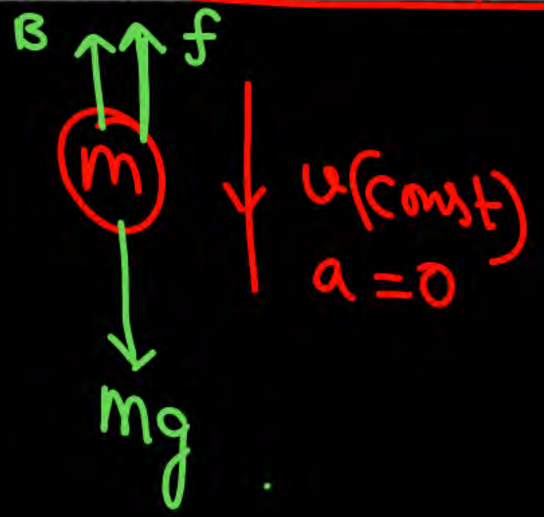


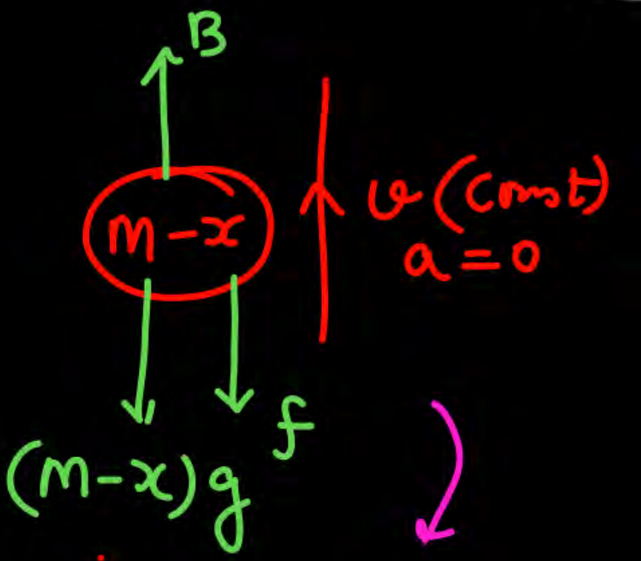


Ans: (2m/5)

The force of buoyancy exerted by the atmosphere on a balloon is B in the upward direction and remains constant. The force of air resistance on the balloon acts opposite to the direction of velocity and is proportional to it. The balloon carries a mass M and is found to fall down near the earth's surface with a constant velocity v. How much mass should be removed from the balloon so that it may rise with a constant velocity v?

$f = kv$





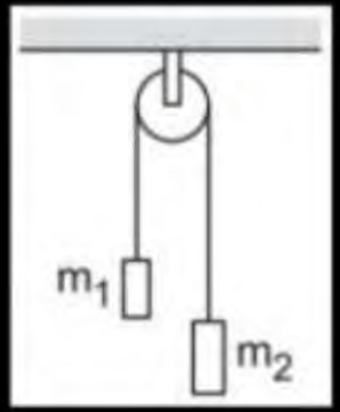
$B = f + (m - x)g$

$B + f = mg$

Ans: $2\left(M - \frac{B}{g}\right)$

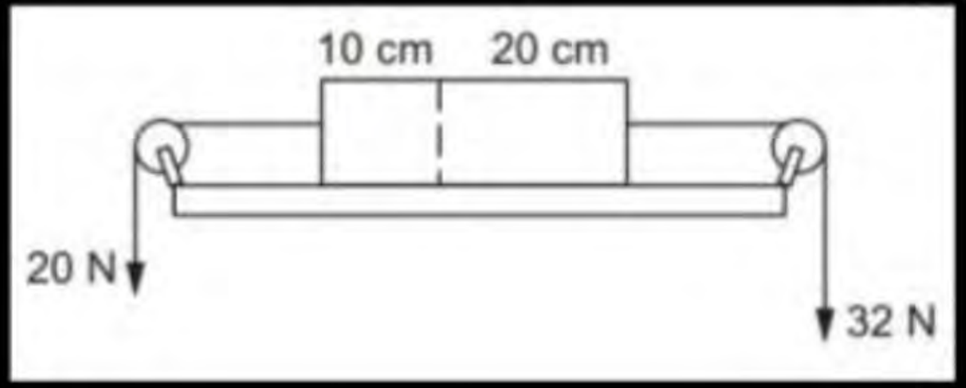
Q

In a simple Atwood machine, two unequal masses m_1 and m_2 are connected by a string going over a clamped light smooth pulley. In a typical arrangement (figure) $m_1 = 300$ g and $m_2 = 600$ g. The system is released from rest. (a) Find the distance travelled by the first block in the first two seconds. (b) Find the tension in the string. (c) Find the force exerted by the clamp on the pulley.



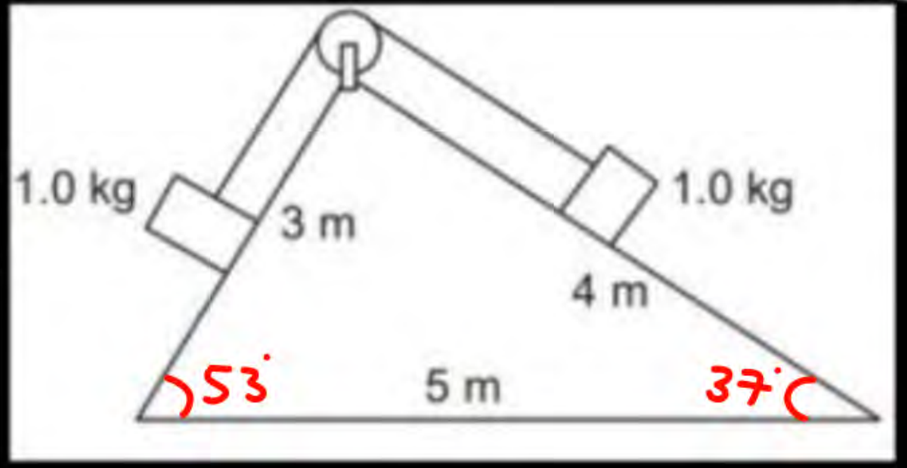
Ans: (a) 6.5 m, (b) 3.9 N, (c) 7.8 N

Figure (5-E8) shows a uniform rod of length 30 cm having a mass of 3·0 kg. The strings shown in the figure are pulled by constant forces of 20 N and 32 N. Find the force exerted by the 20 cm part of the rod on the 10 cm part. All the surfaces are smooth and the strings and the pulleys are light.



Ans: (24 N)

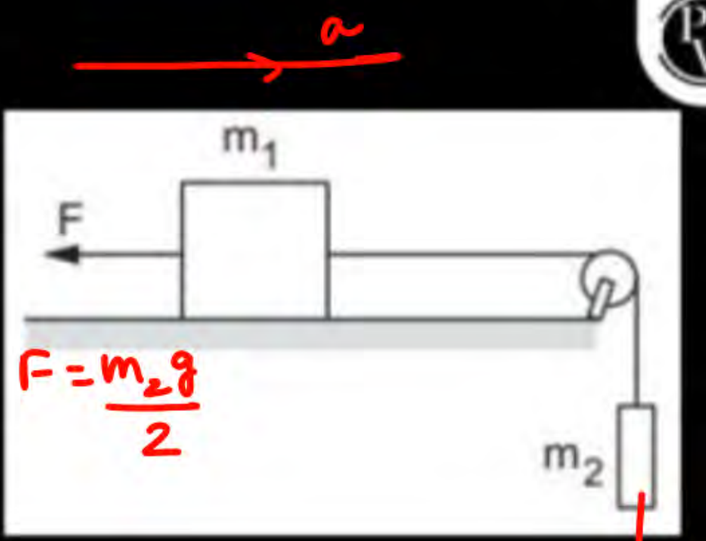
Consider the situation shown in figure (5-E9). All the surfaces are frictionless and the string and the pulley are light. Find the magnitude of the acceleration of the two blocks.



Ans: (g/10)

HCV

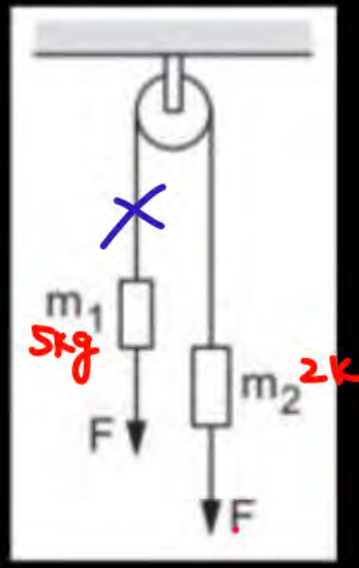
A constant force $F = m_2 g/2$ is applied on the block of mass m_1 as shown in figure (5-E10). The string and the pulley are light and the surface of the table is smooth. Find the acceleration of m_1.



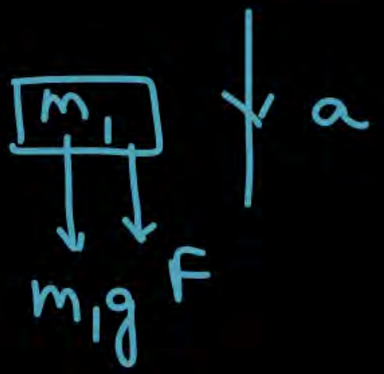
$$a = \frac{m_2 g - m_2 g/2}{m_1 + m_2}$$

Ans: $\frac{m_2 g}{2(m_1 + m_2)}$ towards right

In figure (5-E11) $m_1 = 5$ kg, $m_2 = 2$ kg and $F = 1$ N. Find the acceleration of either block. Describe the motion of m_1 if the string breaks but F continues to act.



$$a = \frac{(50+F)-(20+F)}{3+2} = \frac{30}{7} = 4.3$$

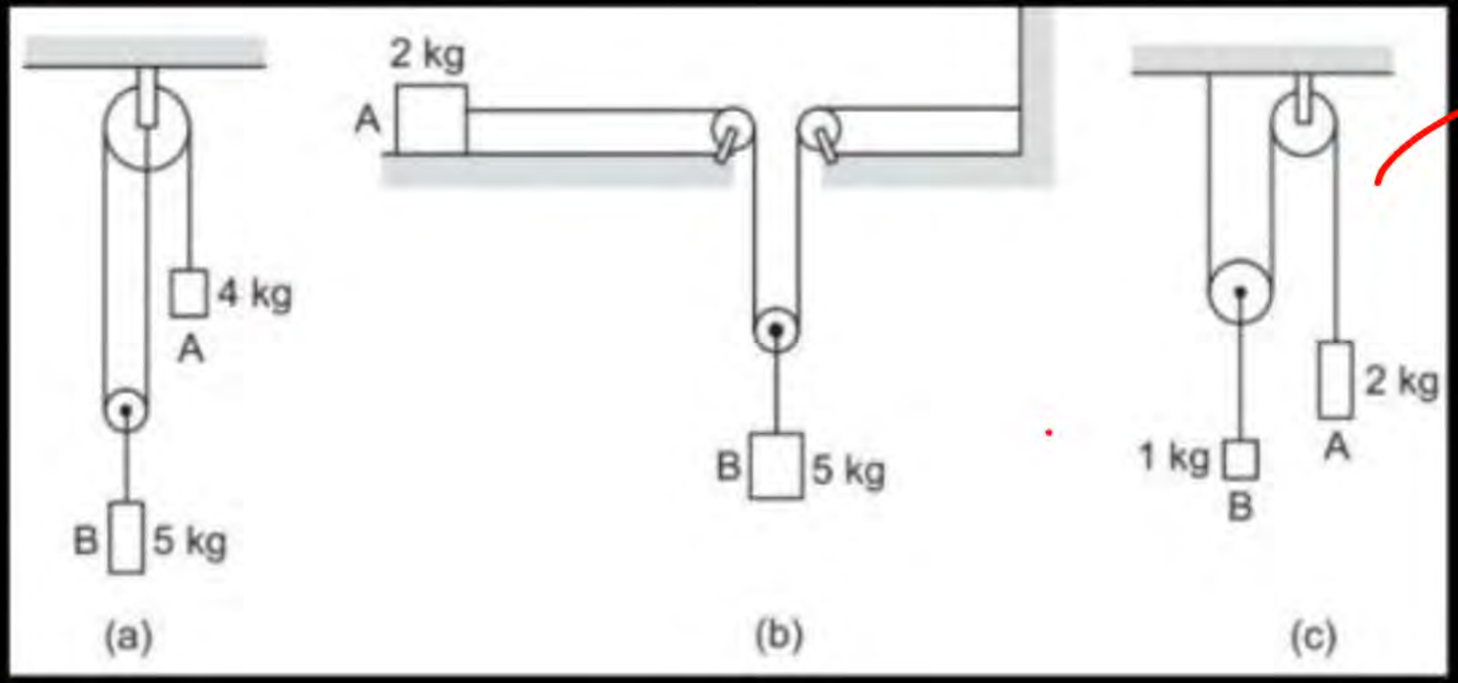


$$a = \frac{m_1 g + F}{m_1}$$

$$a = g + \frac{F}{m_1}$$

Ans 4.3 m/s^2, moves downward with acceleration g + 0.2 m/s^2

Find the acceleration of the blocks A and B in the three situations shown in figure (5-E17).



Constraint motion
Last से पढ़ेंगे

Ans:

(a) $\frac{2}{7}g$ downward, $\frac{g}{7}$ upward

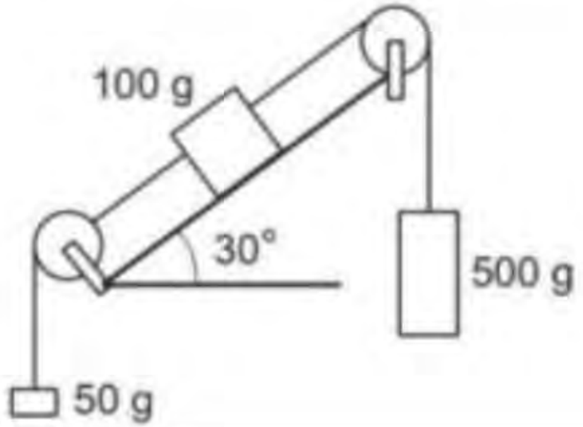
(b) $\frac{10}{13}g$ forward, $\frac{5}{13}g$ downward

(c) $\frac{2}{3}g$ downward, $\frac{g}{3}$ upward

Q

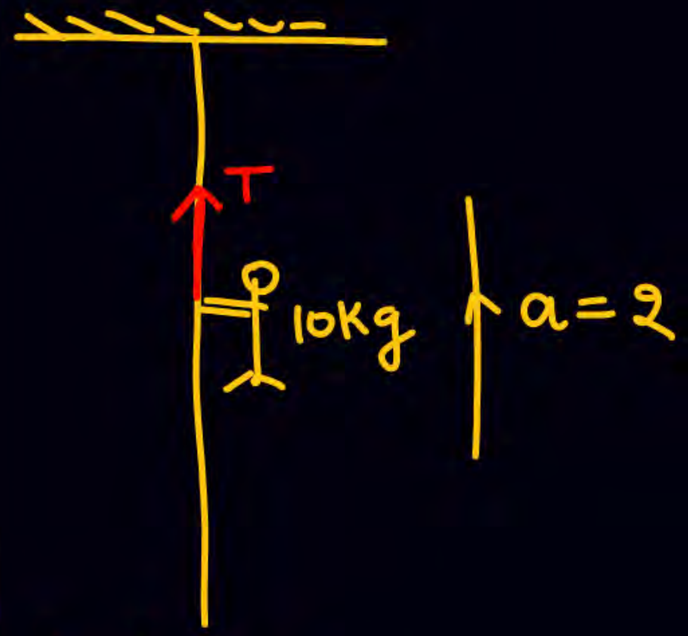
Find the acceleration of the 500 g block in figure (5-E18).

HW



Ans: $\frac{8}{13}g$ downward

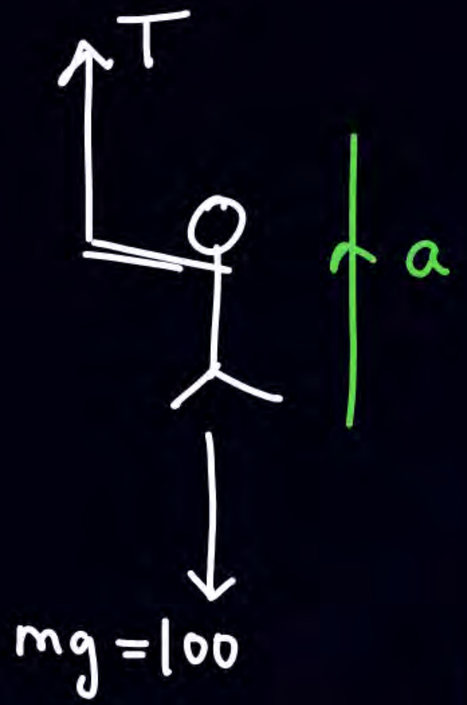
Q



① find T = ?

② find force applied by monkey on string.

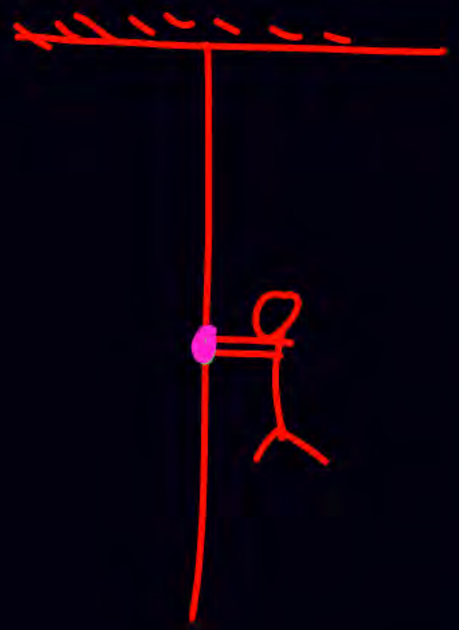
Sol^n



$T - 100 = 10 \cdot a$

$T - 100 = 10 \times 2$

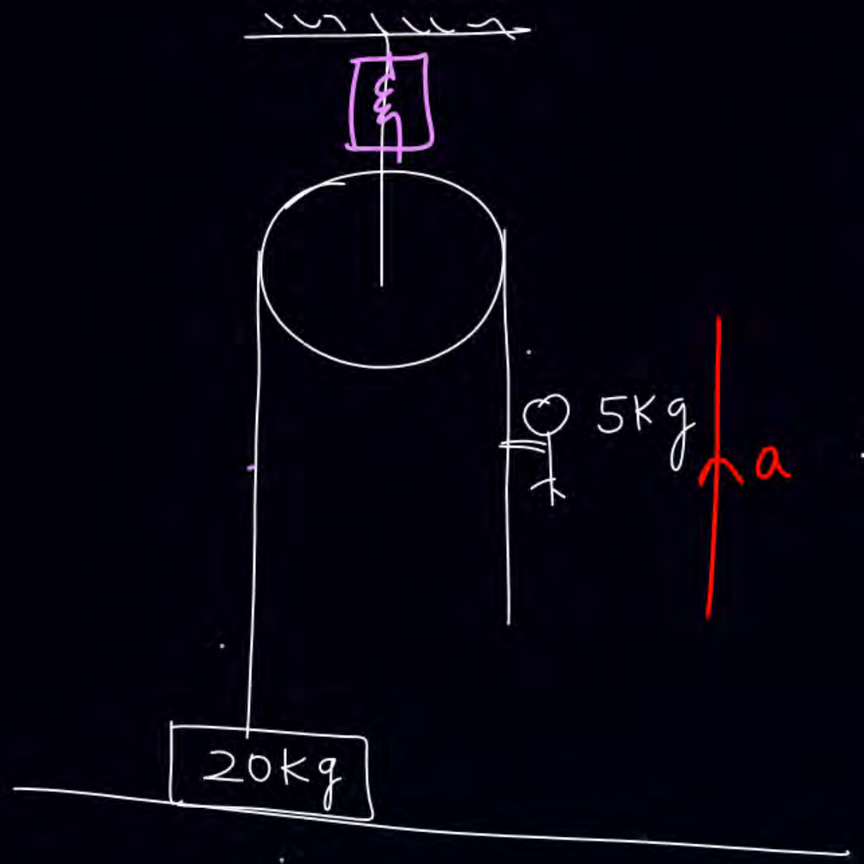
$\boxed{T = 120}$




T
f
f
mg


T

Q



Find min acc. of monkey so that 20kg block lift off.

Sol^{n}

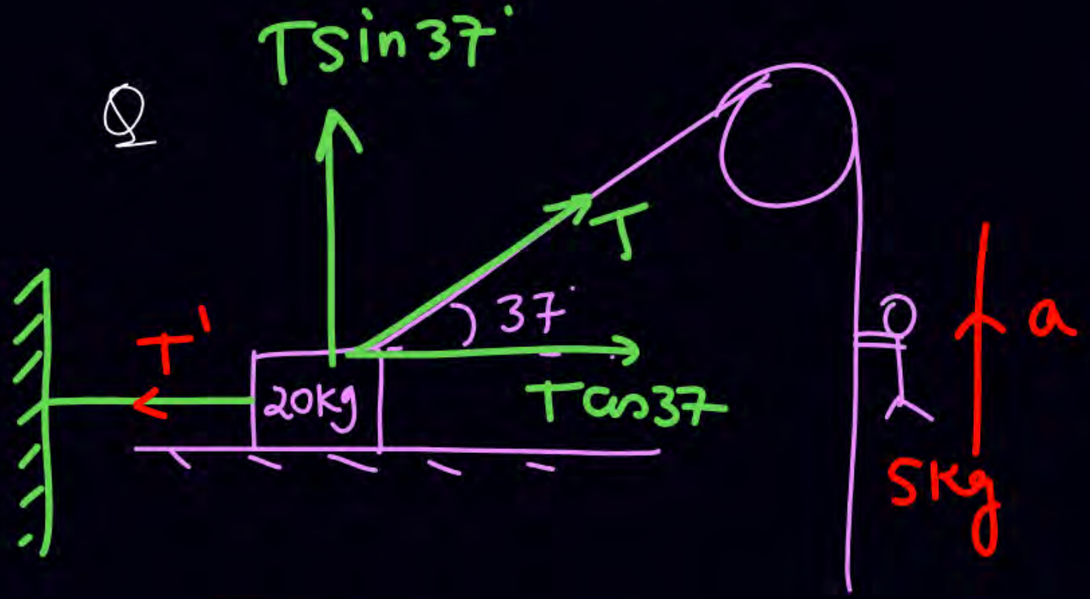
$T = 200$

$T - 50 = 5 \times a$

$200 - 50 = 5a$

$\boxed{a = 30}$

Q



Find min acc. of monkey so that 20kg block lift off.

Sol^n

$T\sin 37 = 200$

$T \times \frac{3}{5} = 200$

$\boxed{T = \frac{1000}{3}}$

$T - 50 = 5a$

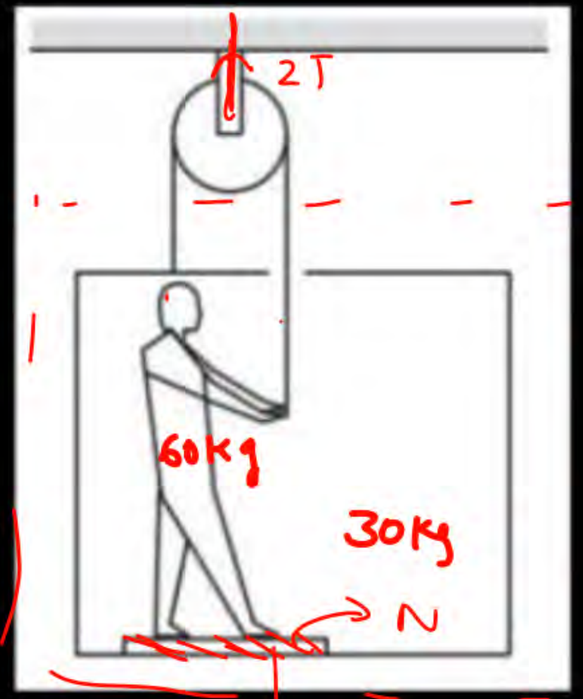
$\frac{1000}{3} - 50 = 5a$

$a = \checkmark$

A monkey of mass 15 kg is climbing on a rope with one end fixed to the ceiling. If it wishes to go up with an acceleration of 1 m/s^2, how much force should it apply to the rope? If the rope is 5 m long and the monkey starts from rest, how much time will it take to reach the ceiling?

Ans: 165 N, $\sqrt{10}$ s

Figure (5-E21) shows a man of mass 60 kg standing on a light weighing machine kept in a box of mass 30 kg. The box is hanging from a pulley fixed to the ceiling through a light rope, the other end of which is held by the man himself. If the man manages to keep the box at rest, what is the weight shown by the machine ? What force should he exert on the rope to get his correct weight on the machine ?



T = 450

T + N = mg

450 + N = 600

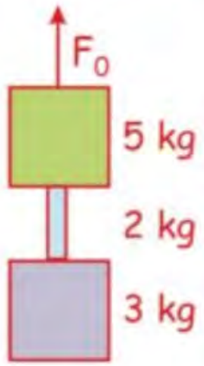
N = 150 Newton

600

Ans: 15 kg, 1800 N

HW

Q. A 5 kg block has a rope of mass 2 kg attached to its underside and a 3 kg block is suspended from the other end of the rope. The whole system is accelerated upward at an acceleration of 2 m/s^2 by an external force F_0. ($g = 10\ m/s^2$)



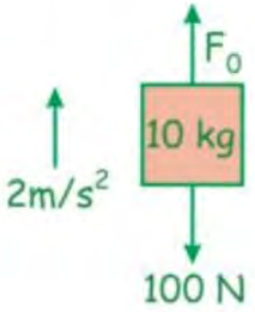
(a) What is the value of F_0?

(b) What is the net force on the rope?

(c) What is the tension at middle point of the rope?

Sol. For calculating the value of F_0, consider two blocks with the rope as a system.

F.B.D. of whole system



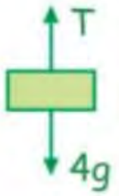
(a) $F_0 - 100 = 10 \times 2$

$F_0 = 120\ N$ ... (i)

(b) According to Newton's second law, net force on rope

$F = ma = (2)(2) = 4\ N$

(c) For calculating tension at the middle point we draw F.B.D. of 3 kg block with half of the rope (mass 1 kg) as shown.



$T - 4g = 4 \times (2) \Rightarrow T = 48N$

In the system shown, pulley and strings are ideal. The vertically upward pull F is being increased gradually, find magnitude of F and acceleration of the 5 kg block at the moment the 10 kg block leaves the floor.

HW

प्रदर्शित निकाय में घिरनी तथा रस्सियाँ आदर्श हैं। ऊर्ध्वाधर ऊपर की ओर खिंचाव बल F धीरे-धीरे बढ़ता है। जब 10 kg का ब्लॉक फर्श से सम्पर्क छोड़ता है तो उस क्षण 5 kg के ब्लॉक का त्वरण तथा F का परिमाण ज्ञात कीजिए।

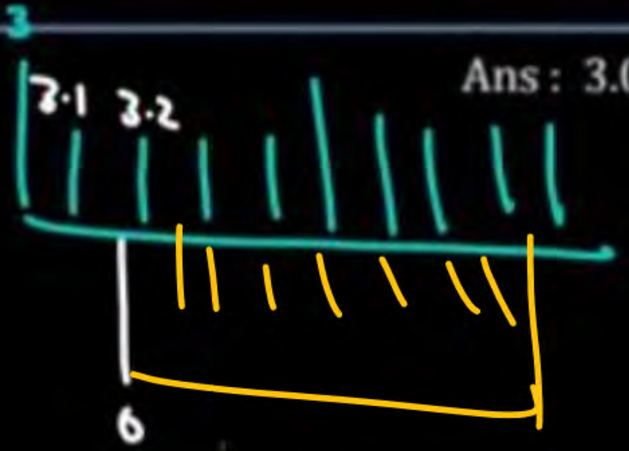
Ans. 200 N, 10 m/s^2

The main scale of a vernier calipers reads in millimeter and its vernier is divided into 10 divisions which coincide with 9 divisions of the main scale. When the two jaws of the instrument touch each other the seventh division of the vernier scale coincide with a scale division and the zero of the vernier lies to the right of the zero of main scale. Furthermore, when a cylinder is tightly placed along its length between the two jaws, the zero of the vernier scale lies slightly to the left of 3.2 cm; and the fourth vernier division coincides with a scale division. Calculate the measured length of the cylinder. LC = ·01 cm ZE = 7 × LC = ·07

Ans : 3.07 cm

3.1 + 4 × LC − ·07

3.14 − ·07 = 3.07



Least count of a vernier calipers is 0.01 cm. When the two jaws of the instrument touch each other, the 5th division of the vernier scale coincide with a main scale division and the zero of the vernier scale lies to the left of the zero of the main scale. Furthermore, while measuring the diameter of a sphere, the zero mark of the vernier scale lies between 3.2 cm and 3.3 cm and the 7th vernier division coincides with a main scale division. Calculate the diameter of the sphere.

$3.27 - (-.05) = 3.32$ cm

Ans : 3.32 cm

A Vernier callipers has 1 mm marks on the main scale. It has 20 equal divisions on the Vernier scale which match with 16 main scale divisions. For this Vernier calipers, the least count is: **[JEE 2010]**

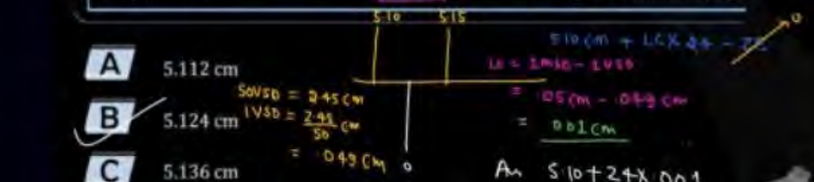
A 0.02 mm

B 0.05 mm

C 0.1 mm

D 0.2 mm

The diameter of a cylinder is measured using a Vernier callipers with no zero error. It is found that the zero of the Vernier scale lies between 5.10 cm and 5.15 cm of the main scale. The Vernier scale has50 divisions equivalent to 2.45 cm. The 24th division of the Vernier scale exactly coincides with one of the main scale divisions. The diameter of the cylinder is : **[JEE-Advance 2013]**



A 5.112 cm

B 5.124 cm

C 5.136 cm

D 5.148 cm

15. Consider the diameter of a spherical object being measured with the help of a Vernier callipers. Suppose its 10 Vernier Scale Divisions (V.S.D.) are equal to its 9 Main Scale Divisions (M.S.D.). The least division in the M.S. is 0.1 cm and the zero of V.S. is at $x = 0.1$ cm when the jaws of Vernier callipers are closed.

If the main scale reading for the diameter is $M = 5$ cm and the number of coinciding vernier division is 8, the measured diameter after zero error correction, is

NEET 2025

(1) 5.00 cm
(2) 5.18 cm
(3) 5.08 cm
(4) 4.98 cm

ze = ·1 cm

Answer (4)

Sol. Least count = 1MSD – 1VSD

$$= 1\,\text{MSD} - \frac{9}{10}\text{MSD} = \frac{1}{10}\text{MSD}$$

$$= \frac{1}{10} \times 0.1\,\text{cm} = 0.01\,\text{cm}$$

Zero error = +0.1 cm

Main scale reading = 5 cm

Vernier scale reading = 8 × 0.01 = 0.08 cm

Final measurement of diameter

= 5 + 0.08 – 0.1 = 4.98 cm

5 + 8 × LC − ·1

5 + 8 × ·01 − ·1 =

10 VSD = 9 MSD

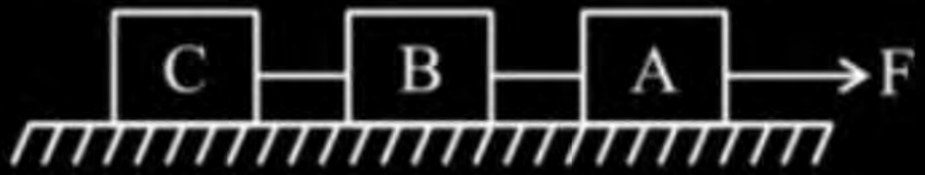
1 VSD = $\frac{9}{10}$ MSD

LC = 1 MSD − 1 V.S.D = ·01 c

= 1 MSD − $\frac{9}{10}$ MSD = $\frac{1}{10}$ (·1 cm)

QUESTION

Three identical blocks of masses m = 2kg are drawn by a force F = 10 2 N with an acceleration of 0.6 ms^{-2} on a frictionless surface, then what is the tension (in N) in the string between the blocks B and C? [NCERT: PL-65 | 2002]



1. 9.2
2. 3.4
3. 4
4. 9.8

Ans : (2)

QUESTION

A lift is moving down with acceleration a. A man in the lift drops a ball inside the lift. The acceleration of the ball as observed by the man in the lift and a man standing stationary on the ground are respectively [NCERT: PL-65 | 2002]

1. g, g
2. $g - a, g - a$
3. $g - a, g$
4. a, g

Ans : (3)

QUESTION

Two masses $m_1 = 5$ kg and $m_2 = 4.8$ kg tied to a string are hanging over a light frictionless pulley. What is the acceleration of the masses when left free to move? ($g = 9.8\ m/s^2$) [NCERT: PL-65 | 2004]

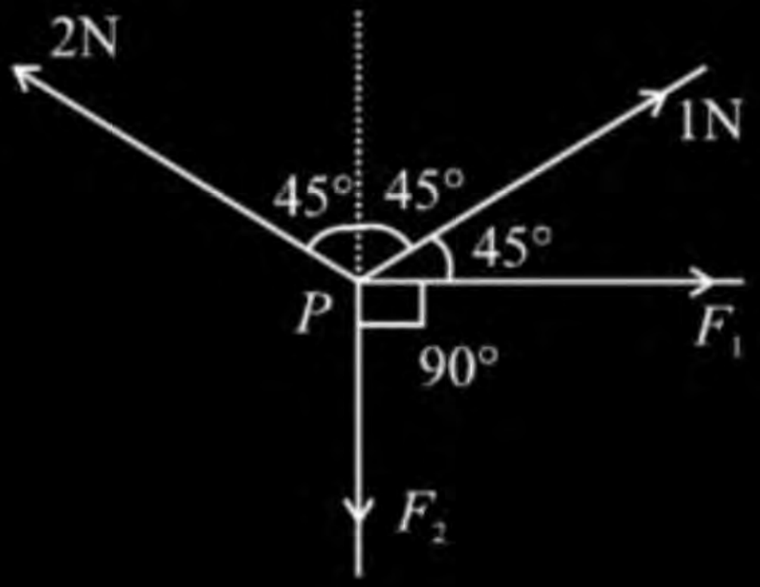
1. $5\ m/s^2$
2. $9.8\ m/s^2$
3. $0.2\ m/s^2$
4. $4.8\ m/s^2$

Ans : (3)

QUESTION

Four forces are acting at a point P in equilibrium as shown in figure. The ratio of force F_1 to F_2 is $1 : x$ where $x =$ _____.

[NCERT: PL-58 | July 25, 2022 (I)]

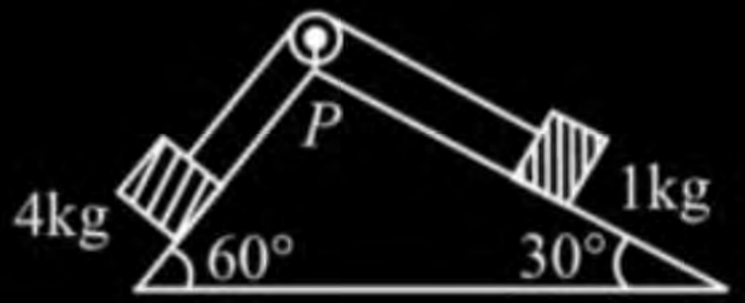


Ans : (3)

QUESTION

As per given figure, a weightless pulley P is attached on a double inclined frictionless surface. The tension in the string (massless) will be: (if $g = 10\ m/s^2$).

[24 January 2023 - Shift 1]



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

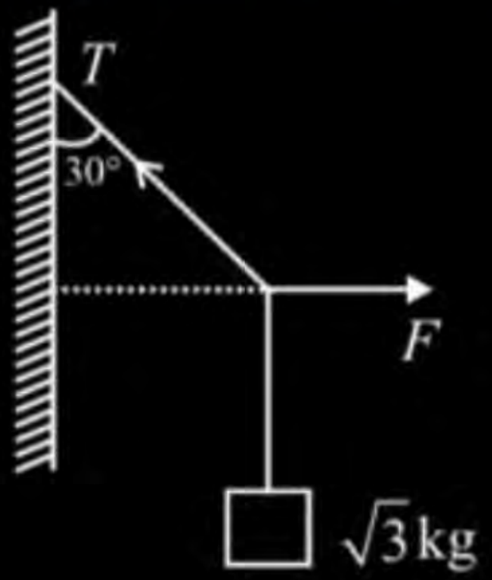
Ans : (2)

QUESTION

A block of $\sqrt{3}$ kg is attached to a string whose other end is attached to the wall. An unknown force F is applied so that the string makes an angle of 30° with the wall. The tension T is: (Given $g = 10\ ms^{-2}$)

[NCERT: PL-58, 59 | Jan 30, 2023 (II)]

1. 20 N
2. 25 N
3. 10 N
4. 15 N

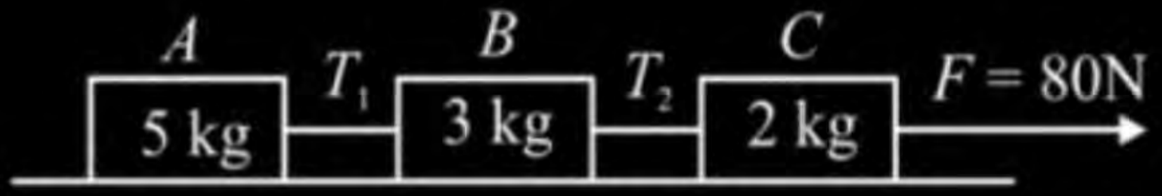


Ans: (1)

QUESTION

Three blocks A, B and C are pulled on a horizontal smooth surface by a force of 80 N as shown in figure. The tensions T_1 and T_2 in the string are respectively.

[NCERT: PL-65 | Jan 30, 2024 (II)]



1. 40 N, 64 N
2. 60 N, 80 N
3. 88 N, 96 N
4. 80 N, 100 N

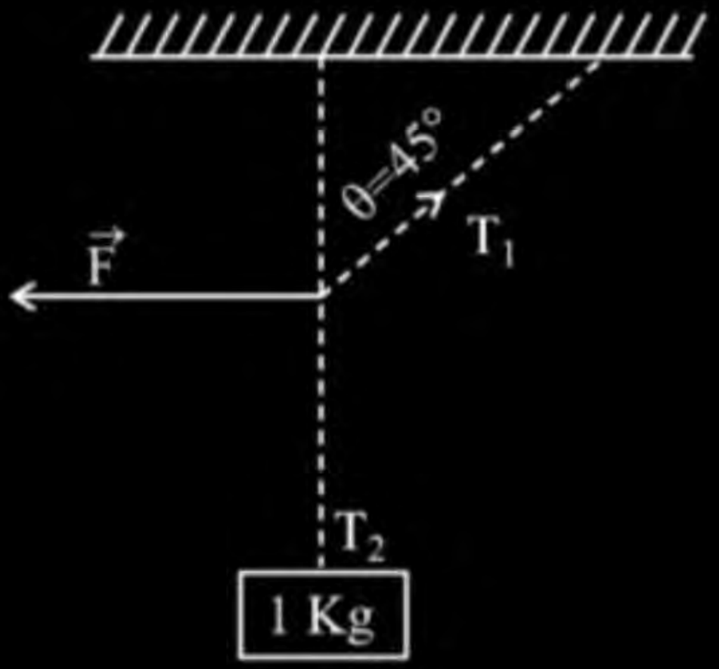
Ans: (1)

QUESTION

A 1 kg mass is suspended from the ceiling by a rope of length 4m. A horizontal force 'F' is applied at the mid point of the rope so that the rope makes an angle of 45° with respect to the vertical axis as shown in figure. The magnitude of F is:

[NCERT: PL-58, 59 | April 9, 2024 (II)]

1. $\frac{10}{\sqrt{2}}$ N
2. 1 N
3. $\frac{1}{10 \times \sqrt{2}}$ N
4. 10 N

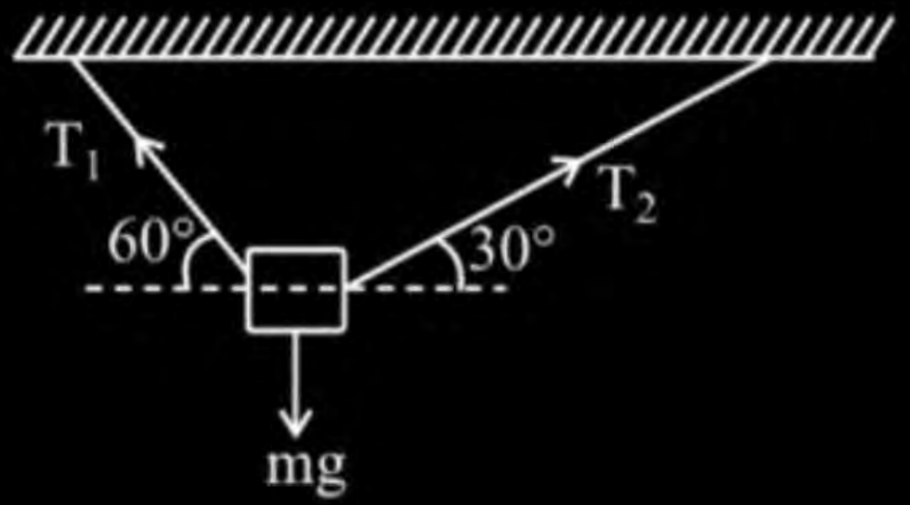


Ans: (4)

QUESTION

A body of mass 1 kg is suspended with the help of two strings making angles as shown in figure. Magnitudes of tensions T_1 and T_2, respectively, are (in N):

[NCERT: PL-65 | April 2, 2025 (II)]



1. $5, 5\sqrt{3}$
2. $5\sqrt{3}, 5$
3. $5\sqrt{3}, 5\sqrt{3}$
4. $5, 5$

Ans: (2)

QUESTION

A boy pushes a box of mass 2 kg with a force $\vec{F} = (20\hat{i} + 10\,\hat{j})$N on a frictionless surface. If the box was initially at rest, then _____ m is displacement along the x-axis after 10 s.

[NCERT: PL-54 | Feb. 26, 2021 (I)]

Ans: (500)

QUESTION

A force $\vec{F} = (40\hat{i} + 10\hat{j})$N acts on a body of mass 5 kg. If the body starts from rest, its position vector $\vec{r}$ at time = 10 s, will be:

[NCERT: PL-54 | July 25, 2021 (II)]

1. $(100\hat{i} + 400\hat{j})m$
2. $(100\hat{i} + 100\hat{j})m$
3. $(400\hat{i} + 100\hat{j})m$
4. $(400\hat{i} + 400\hat{j})m$

Ans: (3)

QUESTION

An object of mass 5 kg is thrown vertically upwards from the ground. The air resistance produces a constant retarding force of 10 N throughout the motion. The ratio of time of ascent to the time of descent will be equal to: [Use $g = 10\ ms^{-2}$]

[NCERT: PL-54 | June 24, 2022 (II)]

1. 1 : 1
2. $\sqrt{2} : \sqrt{3}$
3. $\sqrt{3} : \sqrt{2}$
4. 2 : 3

Ans: (2)

QUESTION

A spherical body of mass 100 g is dropped from a height of 10 m from the ground. After hitting the ground, the body rebounds to a height of 5 m. The impulse of force imparted by the ground to the body is given by: (given, $g = 9.8\ m/s^2$)

[NCERT: PL-55 | Jan 30, 2024 (I)]

1. $4.32\ kg\ ms^{-1}$
2. $43.2\ kg\ ms^{-1}$
3. $23.9\ kg\ ms^{-1}$
4. $2.39\ kg\ ms^{-1}$

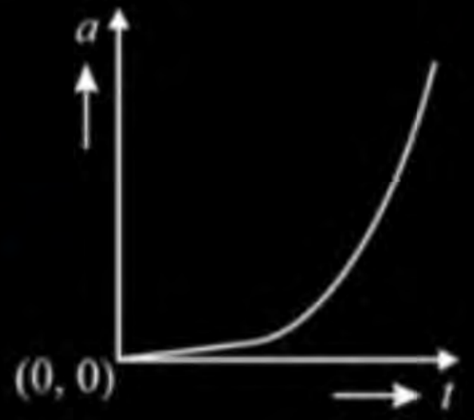
Ans: (4)

QUESTION

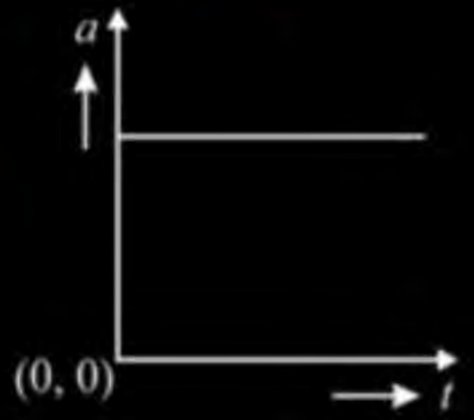
A wooden block, initially at rest on the ground, is pushed by a force which increases linearly with time t. Which of the following curve best describes acceleration of the block with time:

[NCERT: PL-54 | April 4, 2024 (I)]

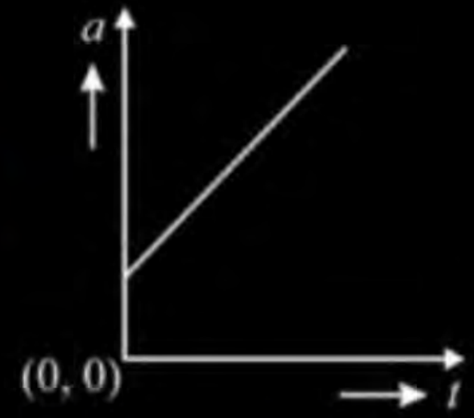
1



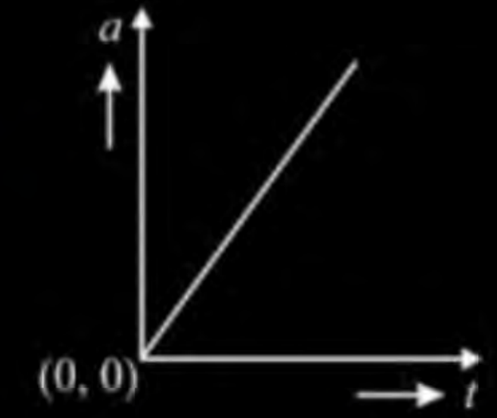
2



3



4



Ans : (4)

QUESTION

A balloon and its content having mass M is moving up with an acceleration 'a'. The mass that must be released from the content so that the balloon starts moving up with an acceleration '$3a$' will be (Take 'g' as acceleration due to gravity).

[NCERT: PL-54 | Jan. 28, 2025 (II)]

1. $\frac{3Ma}{2a-g}$
2. $\frac{3Ma}{2a+g}$
3. $\frac{2Ma}{3a+g}$
4. $\frac{2Ma}{3a-g}$

Ans: (3)

QUESTION - 33

Two projectiles of same mass and with same velocity are thrown at an angle 60° and 30° with the horizontal, then which will remain same

[2000]

(1) time of flight
(2) range of projectile
(3) maximum height acquired
(4) all of them

Ans : (2)

QUESTION - 27

A missile is fired for maximum range with an initial velocity of 20 m/s. If $g = 10\ m/s^2$, the range of the missile is:

[2011]

(1) 40 m
(2) 50 m
(3) 60 m
(4) 20 m

Ans : (1)

QUESTION - 26

The horizontal range and the maximum height of a projectile are equal. The angle of projection of the projectile is:

[2012]

(1) $\theta = \tan^{-1}\left(\frac{1}{4}\right)$ (2) $\theta = \tan^{-1}(4)$

(3) $\theta = \tan^{-1}(2)$ (4) $\theta = 45°$

Ans : (2)

QUESTION - 22

A ball is projected with a velocity, 10 ms^{-1}, at an angle of 60° with the vertical direction. Its speed at the highest point of its trajectory will be:

[2022]

(1) Zero

(2) $5\sqrt{3}\ ms^{-1}$

(3) $5\ ms^{-1}$

(4) $10\ ms^{-1}$

Ans : (2)

QUESTION - 21

A bullet is fired from a gun at the speed of 280 m/s in the direction 30° above the horizontal. The maximum height attained by the bullet is:
($g = 9.8\ ms^{-2}$, $\sin 30^{\circ} = 0.5$)

[2023]

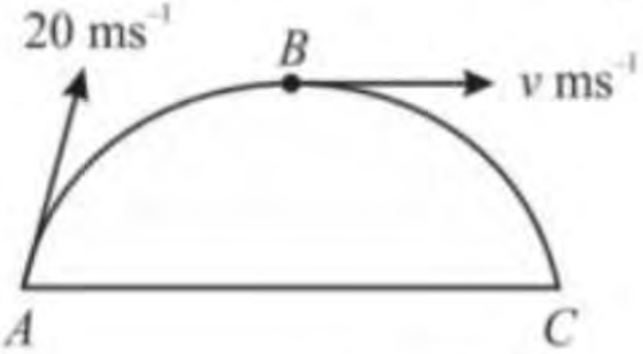
(1) 1000 m
(2) 3000 m
(3) 2800 m
(4) 2000 m

Ans : (1)

QUESTION - 20

A ball is projected from point A with velocity $20\ ms^{-1}$ at an angle $60°$ to the horizontal direction. At the highest point B of the path (as shown in figure), the velocity $v\ ms^{-1}$ of the ball will be:

[2023-Manipur]



(1) 20
(2) $10\sqrt{3}$
(3) Zero
(4) 10

Ans : (4)

QUESTION - 19

The width of river is 1 km. The velocity of boat is 5 km/hr. The boat covered the width of river in shortest time 15 min. Then the velocity of river stream is:

[2000, 1998]

(1) 3 km/hr (2) 4 km/hr

(3) $\sqrt{29}$ km/hr (4) $\sqrt{41}$ km/hr

Ans : (1)

QUESTION - 17

The speed of a swimmer in still water is 20 m/s. The speed of river water is 10 m/s and is flowing due east. If he is standing on the south bank and wishes to cross the river along the shortest path, the angle at which he should make his strokes w.r.t. north is, given by:

[NEET 2019]

(1) 45° west
(2) 30° west
(3) 0°
(4) 60° west

Ans : (2)

QUESTION - 14

A particle has initial velocity $(2\hat{i}+3\hat{j})$ and acceleration $(0.3\hat{i}+0.2\hat{j})$. The magnitude of velocity after 10 seconds will be:

[2012]

(1) $9\sqrt{2}$ units (2) $5\sqrt{2}$ units
(3) 5 units (4) 9 units

Ans : (2)

QUESTION - 15

A particle has initial velocity $(3\hat{i}+4\hat{j})$ and has acceleration $(0.4\hat{i}+0.3\hat{j})$. Its speed after 10 s is:

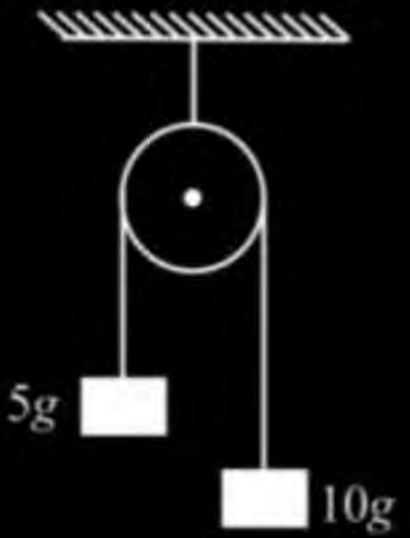
[2010]

(1) 7 units (2) $7\sqrt{2}$ units
(3) 8.5 units (4) 10 units

Ans : (2)

QUESTION

Two masses as shown in the figure are suspended from a massless pulley. The acceleration of the system when masses are left free is: [NEET - 2000]



1. $2g/3$
2. $g/3$
3. $g/9$
4. $g/7$

Ans: (2)

QUESTION

A balloon with mass m is descending down with an acceleration a (where $a < g$). How much mass should be removed from it so that it starts moving up with an acceleration a?

[NEET - 2014]

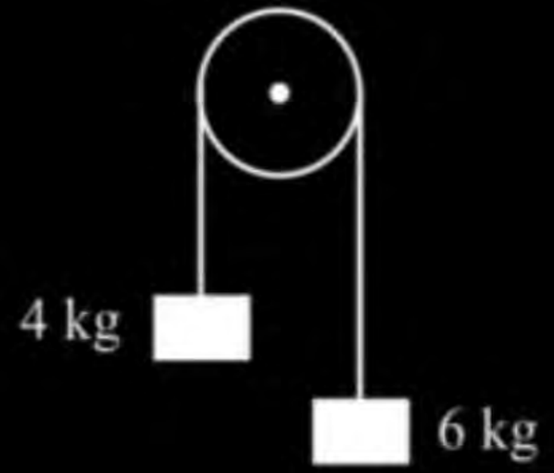
1. $\frac{2ma}{g+a}$
2. $\frac{2ma}{g-a}$
3. $\frac{ma}{g+a}$
4. $\frac{ma}{g-a}$

Ans: (1)

QUESTION

Two bodies of mass 4 kg and 6 kg are tied to the ends of a massless string. The string passes over a pulley which is frictionless (see figure). The acceleration of the system in terms of acceleration due to gravity (g) is: [NEET - 2020]

1. g
2. $g/2$
3. $g/5$
4. $g/10$



Ans: (3)

QUESTION

A 10 N force is applied on a body produce in it an acceleration of 1 m/s^2. The mass of the body is:

[NEET - 1996]

1. 15 kg
2. 20 kg
3. 10 kg
4. 5 kg

Ans: (3)

QUESTION

An object of mass 3 kg is at rest. Now a force of $\vec{F} = 6t^2\hat{i} + 4t\hat{j}$ is applied on the object then velocity of object at $t = 3$ s is:

[NEET - 2002]

1. $18\hat{i} + 3\hat{j}$
2. $18\hat{i} + 6\hat{j}$
3. $3\hat{i} + 18\hat{j}$
4. $18\hat{i} + 4\hat{j}$

Ans: (2)

QUESTION

A body, under the action of a force $\vec{F} = 6\hat{i} - 8\hat{j} + 10\hat{k}$, acquires an acceleration of $1\ m/s^2$. The mass of this body must be: [NEET - 2009]

1. 10 kg
2. 20 kg
3. $10\sqrt{2}$ kg
4. $2\sqrt{10}$ kg

Ans: (3)

QUESTION

A ball of mass 0.15 kg is dropped from a height 10 m, strikes the ground and rebounds to the same height. The magnitude of impulse imparted to the ball is: ($g = 10\ m/s^2$) nearly.

[NEET - 2021]

1. 1.4 kg m/s
2. 0 kg m/s
3. 4.2 kg m/s
4. 2.1 kg m/s

Ans: (3)

Home Work

- Ques are attached. 35 ques + solve them (PYQ)
& jab save ques try kar lo comment karke batana.

- KPP (23) → (Sunday) from will be uploaded today even.

join it

THANK YOU