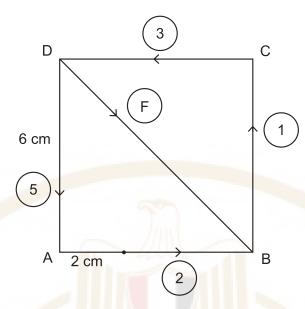
تدريبات على أختبار رياضيات باللغة الإنجليزية للصف الثالث الثانوى 2021

- **1.** A body of weight 39 kg.wt is placed on a horizontal rough plane, two forces in the same horizontal plane of the body of magnitude 5, 12 kg.wt and the measure of angle between them 90° act on it to make the about to move, then the coefficient of the static friction between the body and the plane =
 - $\frac{1}{2}$
 - $\frac{1}{4}$
 - $\cdot \frac{1}{5}$
 - $\frac{1}{3}$
- 2. A force \vec{F} acts at a certain point, if the moment of \vec{F} about the two points B (3, 5) and C (7, 1) are $28\vec{K}$ and $-28\vec{K}$ respectively, then the moment of the force \vec{F} vanishes about the point
 - (0,0)
 - (2,-2)
 - (5,3)
 - (-2, 2)

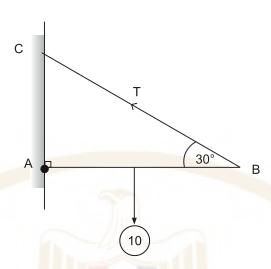


In the opposite figure:

The forces shown in the figure act in the sides of the square ABCD of side length = 6 cm if the forces are measured in newton and their resultant acts at $E \in \overline{AB}$, where

AE = 2 cm, then: $F = \dots$ newton

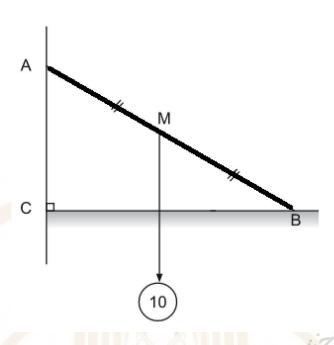
- 8√2
- 12√2
- 2√2
- √2



In the opposite figure:

A uniform rod \overline{AB} of weight 10 kg.wt is hinged at end A to a hinge fixed at a vertical wall and attached at end B by a light inflexible rope inclined to the rod by an angle of measure 30°. and the other end of the rope is fixed at the point C on the wall above A, then the magnitude of the tension in the rope which keeps the rod in equilibrium horizontally = kg.wt

- 10
- 5
- 20
- $\frac{10}{3}$



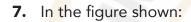
In the opposite figure:

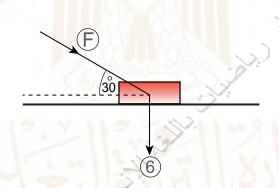
A uniform rod of weight 10 kg.wt rests at its end A on a smooth vertical wall and its end B on a rough horizontal ground, if the coefficient of static friction between the rod and the ground equals $\frac{1}{2}$, and the rod is about to slide then the reaction of the wall on

the rod =kg.wt

- 10
- 2.5
- 20
- 5

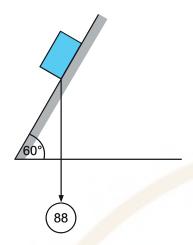
- **6.** If $\overrightarrow{F_1} = (a, -3)$, $\overrightarrow{F_2} = (1, 1)$ and $\overrightarrow{F_3} = (1, b a)$ are equivalent to a couple, then $a + b = \dots$
 - -1
 - 1
 - 3
 - -2





a body of weight 6 newton is placed on a rough horizontal plane, a force \vec{F} of magnitude 6 newton acts on the body in a direction inclined to the horizontal by an angle of measure 30° downwards, if the body becomes about to move, then the measure of the angle between the resultant reaction \vec{R} ° and the force \vec{F} equals°

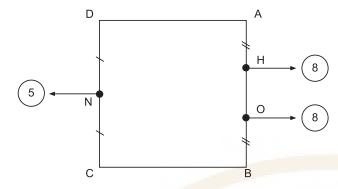
- 120
- 150
- 60
- 30



In the opposite figure:

A body of weight 88 newton is placed on a rough inclined plane makes an angle of measure 60° to the horizontal, if the body is about to slide, then the magnitude of the limiting static friction force = newton

- 22√3
- 44
- 44√3
- 22

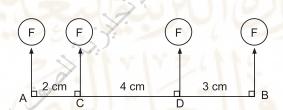


In the opposite figure:

ABCD is a square ,the coplanar parallel forces whose magnitudes 8, 8, 5 newton act at the points H, O and N respectively where N is the mid-point of \overline{CD} , AH = BO then the algebraic sum of the moments of these forces about the point of intersection of diagonals equals

- 5
- 8
- 16
- zero

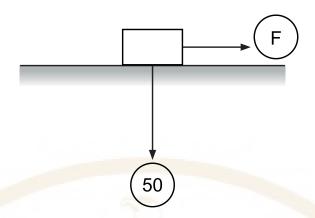
10.



In the opposite figure :

If the resultant of the forces acts at the point M where $M \in \overline{AB}$, Then $BM = \dots cm$

- 3.25
- 4.75
- 2.25
- 3.75



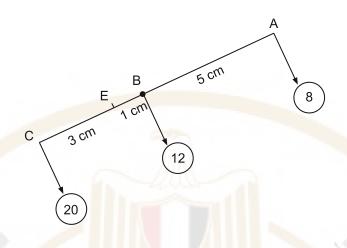
In the opposite figure:

A body of weight 50 kg.wt is placed on horizontal rough plane. A horizontal force of magnitude F kg.wt acts on the body makes it about to move, if the sine of the angle of friction equals $\frac{3}{\sqrt{34}}$, then F = kg.wt

- 25√34
- 50
- 30
- 50√34

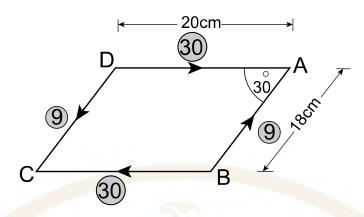
12. In the opposite figure:

The coplanar parallel forces whose magnitudes 8, 12, 20 newton



act at the points A, B and C respectively, then the algebraic measure of sum of the moments of these forces about the point E equals newton. cm

- zero
- 60
- - 60
- 40

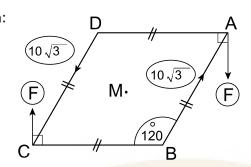


In the opposite figure:

ABCD is a parallelogram in which m (\angle A) = 30°, AB = 18 cm, AD = 20 cm, the forces as shown in the figure are measured in gm.wt act to form a resultant couple, if two equal forces F, F gm.wt act at the two points A, D and perpendicular to \overline{AD} to form a couple equivalent to the previous couple, then the magnitude of F = gm.wt.

- 18
- 9
- 20
- 10

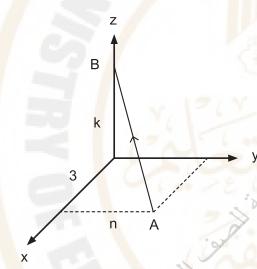
14. In the figure shown:



ABCD is a regular lamina in the shape of a rhombus in which m (\angle B) = 120°, the lamina was suspended from a small hole at its centre M. The two forces of magnitudes $10\sqrt{3}$ N, $10\sqrt{3}$ N act along \overrightarrow{BA} and \overrightarrow{DC} respectively, then two forces of magnitudes F Newton and F Newton act at A and C and perpendiculars to \overrightarrow{AD} and \overrightarrow{BC} respectively as shown in the figure, if the lamina is in equilibrium, then F = Newton

- 10
- 5
- 5√3
- 10√3
- - 12
 - 18
 - 10
 - 15

- **16.** If the force $\vec{F} = 3\hat{i} + 2\hat{j}$ acts at a certain point, and the vector of the moment of the force \vec{F} about the origin point O equals $15\hat{k}$, then the line of action of the force \vec{F} intersects Y-axis at the point
 - (0,15)
 - (0,5)
 - (0,-5)
 - (0, -15)

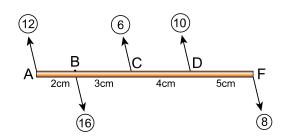


In the Opposite figure

A force of magnitude $10\sqrt{2}$ newton acts in \overrightarrow{AB} where $||\overrightarrow{AB}|| = 5\sqrt{2}$, if the moment vector of the force \overrightarrow{F} about the origin point O is $\overrightarrow{M_0} = 40\hat{\imath} - 30\hat{\jmath}$. Then $k + n = \dots$

- 9
- -1
- 1
- -9

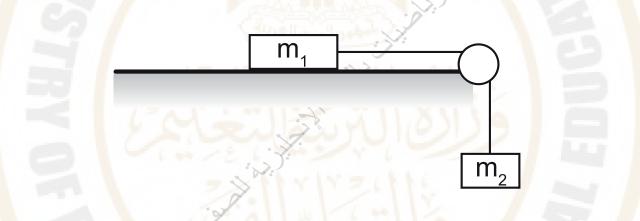
18. In the figure shown:



 $\overrightarrow{\mathsf{AF}}$ is a light rod, the shown parallel forces act on the rod, if the line of action of the resultant of the forces intersects $\overrightarrow{\mathsf{AF}}$ at a point E, then

- E ∈ FA, E ∉ FA
- *E*∈ *AC*
- E∈ <u>CF</u>
- E∈ĀF, E∉ĀF

19.



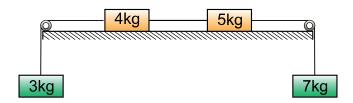
in the opposite figure:

If the system is about to move when the tangent of the angle between the normal reaction and the resultant reaction is 0.2

then $m_1: m_2 =$:

- 1:5
- 2:3
- 5:1
- 3:2

20. In the opposite figure:



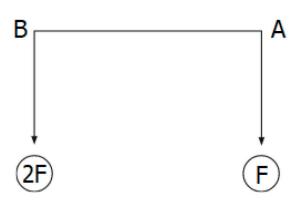
Two masses 5 kg and 4 kg are of the same material.

If the system is about to move and the plane is rough,

then coefficient of static friction =

- $\frac{7}{9}$
- 4/9
- 5
- <u>3</u>

21.

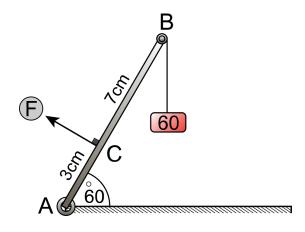


In the opposite figure:

Two parallel forces in the same direction of magnitudes F , 2F newton act at A and B, where AB = 60 cm . and the point of action of their resultant $\in \overline{AB}$ if the two forces exchange their positions,

then the point of action of the resultant moves a distance = cm.

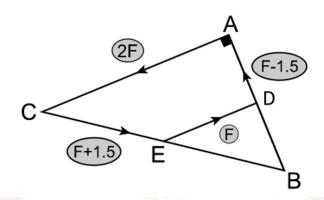
- 10
- 30
- 40
- 20



In the opposite figure:

 \overline{AB} is a uniform rod of negligible weight is attached at A by a hinge fixed in a horizontal ground, a force of magnitude F is perpendicular to the rod acts on it at C where CA = 3 cm, CB = 7cm, a weight 60 gm. wt. is suspended at B makes the rod in equilibrium in position inclined to the horizontal by an angle of measure 60°, then magnitude of the reaction at $A = \dots$ gm. wt.

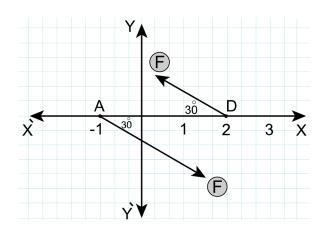
- 20√19
- 15√19
- 10√19
- 25√19



In the opposite figure:

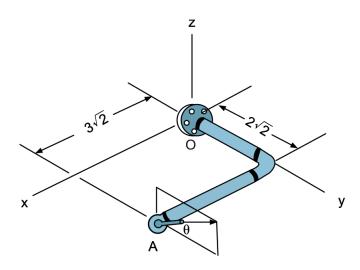
ABC is a right angled triangle at A , AB = 6 cm , AC = 8 cm, D and E are the mid-points of \overline{AB} , \overline{BC} , forces of magnitudes 2F , F , (F + 1.5) and (F – 1.5) newton act in the directions \overrightarrow{AC} , \overrightarrow{ED} , \overrightarrow{CE} and \overrightarrow{DA} respectively, if the system is equivalent to a couple, then the norm of the moment of this couple = newton.cm

- 54
- 72
- 36
- 108



In the opposite figure:

- √3
- 3
- 2
- √2



In the opposite figure:

The force \vec{F} of magnitude 80 newton acts on the rod at the point A such that \vec{F} inclines to the plane X Y by angle θ of measure 45° and the force is parallel to the plane Y Z, then the moment of the force \vec{F} about the point O =

- $160 \hat{i} 240 \hat{j} + 240 \hat{k}$
- $80\sqrt{2}\,\hat{i} 120\sqrt{2}\,\hat{j} 120\sqrt{2}\,\hat{k}$
- $40\sqrt{2}\hat{i} + 120\sqrt{2}\hat{j} + 80\sqrt{2}\hat{k}$
- 240 î 16<mark>0</mark> ĵ 240 k