وزارة التربية والتعليم و التعليم الفنى
الإدارة المركزية للتعليم العام
إدارة تنمية مادة الرياضيات

برعاية معالي وزير التربية والتعليم و التعليم الفنى
السيد الأستاذ/ محمد عبد اللطيف

وتوجيهات رئيس الإدارة المركزية للتعليم العام

د/ هالة عبد السلام خفاجى

إشراف علمي

مستشار الرياضيات

أ/ منال عزقول

أداءات وتقييمات لمنهج تطبيقات الرياضيات لغات

للصف الثانى الثانوي "علمى"

الفصل الدراسى الأول

للعام الدراسي 2025 / 2026

الأسبوع الثامن

لجنة الإعداد

أ/ محمد عبد العاطى أ/ محمود السيد محمد أ/ عفاف جاد

ترجمة

أ/ محمود سليمان نظيم

مراجعة الترجمة

أ/ شريف البرهامى

⑧ الأداء الصفي ـ الصف الثانى الثانوى ـ علمى ـ تطبيقات الرياضيات لغات ـ الأسبوع الثامن ⑧

1) A body of weight 30 kg.wt is placed on a rough horizontal plane. A horizontal force of magnitude F kg.wt acts upon it, making it about to move. If the measure of the angle between the resultant reaction and the limiting friction force is θ, where $\cos\theta = \frac{5}{13}$.
Find the magnitude of the resultant reaction.

2) A body of weight 24 kg.wt is placed on a rough horizontal plane. A horizontal force is acts upon it, making it about to move. If the magnitude of resultant reaction is 30 kg.wt, find the coefficient of static friction between the body and the plane.

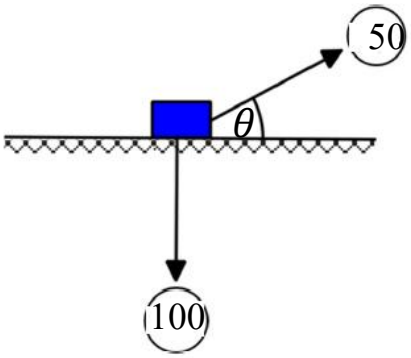
3) A horizontal force of magnitude 80 kg.wt is applied to a container of weight 80 kg,wt containing 24 boxes, each box of weight 20 kg,wt on a rough horizontal ground. The coefficient of static friction between it and the container is $\frac{1}{6}$, find the number of boxes that must be removed so that the container is about to move on the ground.

4) A body of weight 75 kg.wt was placed on a rough horizontal plane. Two horizontal forces of magnitudes 25 , 25 kg.wt were acting on the body in the same plane, enclosing an angle of measure 120° between them. The body was about to move. Find the coefficient of static friction between the body and the plane.

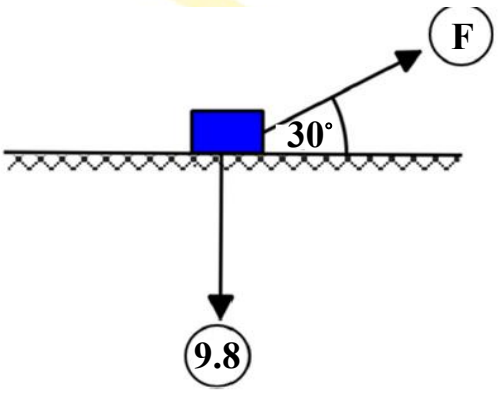
5) A body of weight 100 kg.wt was placed on a rough horizontal plane. two perpendicular horizontal forces of magnitudes 12, 16 kg.wt were acting on the body in the same plane. The body was about to move. Find the coefficient of static friction between the body and the plane.

6) A body of weight W kg.wt was placed on a rough horizontal plane. The coefficient of static friction between it and the body was $\frac{1}{5}$, affected by two horizontal forces of magnitudes 5, 8 kg.wt and the measure of the angle between them is 120° . The body was about to move.
Find the magnitude of W.

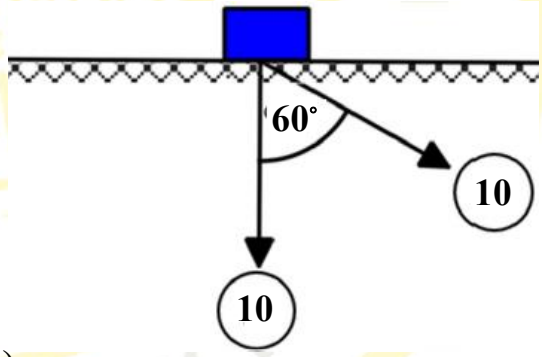
7) In the opposite figure:
If the coefficient of static friction between the body and the rough plane is $\frac{\sqrt{3}}{3}$, find the value of θ , if the body is about to move.
(Since the forces are measured in Newtons)



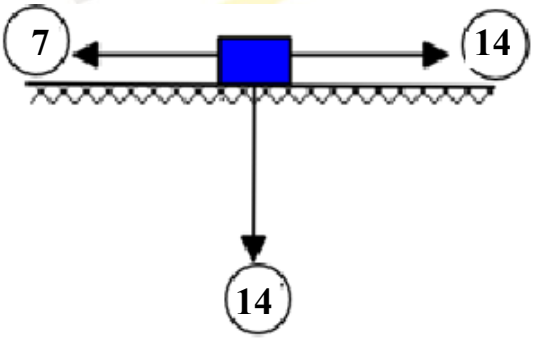
8) In the opposite figure:
If the coefficient of static friction between the body and the plane is $\frac{30\sqrt{3}}{19}$ and the body is about to move,
find the value of: F.
(Where the forces are measured in Newtons)



9) In the opposite figure:
If the body is balanced under the action of the forces shown in the figure on a rough horizontal plane,
find the coefficient of static friction between the body and the plane.
(Where the forces are measured in Newtons)



10) In the opposite figure:
If the body is about to move under the action of the forces shown in the figure on a rough horizontal plane,
find the coefficient of static friction between the body and the plane.
(Where the forces are measured in Newtons)



11) A body of weight 60 Newtons was placed on a rough inclined plane inclined to the horizontal at an angle whose sine = $\frac{3}{5}$. It was observed that the body is about to move under the action of its weight only. Find the coefficient of static friction between the body and the plane.

12) A body was placed on a rough inclined plane inclined to the horizontal at an angle of measure 60°. The coefficient of static friction between the body and the plane was $\frac{\sqrt{3}}{2}$. Explain and state the reason why the body cannot remain in equilibrium on the plane.

13) A body of weight 400 Newton was placed on a rough inclined plane inclined to the horizontal at an angle of measure 30°. A force was applied to the body in the direction of the line of the greatest slope of the plane upward, so the body was about to move up the plane. If the coefficient of static friction between the body and the plane was $\frac{1}{\sqrt{3}}$.
Find the magnitude of the force.

14) A body of weight 30 Newton was placed on a rough inclined plane inclined to the horizontal at an angle of measure 60°. A force of magnitude 10 Newtons was applied to it in the direction of the line of the greatest slope of the plane upward, so the body was about to move downward. Find the magnitude of the force if it is known that the coefficient of static friction between the body and the plane is $\frac{\sqrt{3}}{3}$

15) A body of 30 Newtons weight was placed on a rough inclined plane inclined to the horizontal at an angle of measure θ°. A force of magnitude $20\sqrt{3}$ Newton. It was applied to it in the direction of the line of the greatest slope of the plane upward, so the body was about to move upwards. Find the measure of the angle θ if it is known that the coefficient of static friction between the body and the plane is $\frac{\sqrt{3}}{3}$.

⑧ الأداء المنزلى ـ الصف الثانى الثانوى ـ علمى ـ تطبيقات الرياضيات لغات ـ الأسبوع الثامن ⑧

(1) A body of weight 15 kg.wt is placed on a rough horizontal plane. A horizontal force of magnitude F kg.wt is acts upon it, making it about to move. If the measure of the angle between the resultant reaction and the limiting friction force is θ, where $\cos\theta = \frac{3}{7}$.
Find the magnitude of the resultant reaction.

(2) A body of weight 36 kg.wt is placed on a rough horizontal plane. A horizontal force acts on it, making it about to move. If the magnitude of resultant reaction is 39 kg.wt , find the coefficient of static friction between the body and the plane.

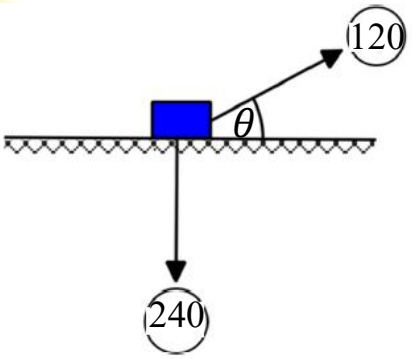
(3) A horizontal force of magnitude 60 kg.wt is applied to a container of weight 50 kg,wt containing 12 boxes, each box of weight 25 kg,wt on a rough horizontal ground. The coefficient of static friction between it and the container is $\frac{3}{5}$, find the number of boxes that must be removed so that the container is about to move on the ground.

(4) A body of weight 32 kg.wt was placed on a rough horizontal plane. Two horizontal forces of magnitudes 8 , 8 kg.wt were acting on the body in the same plane, enclosing an angle of measure 120° between them. The body was about to move. Find the value of the coefficient of static friction between the body and the plane.

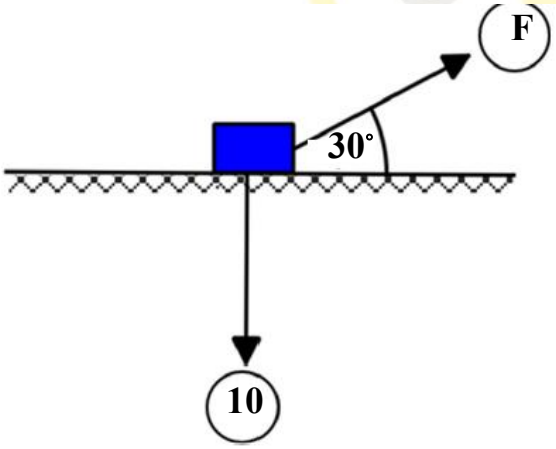
(5) A body of weight 200 kg.wt was placed on a rough horizontal plane. two perpendicular horizontal forces of magnitudes 36, 64 kg.wt were acting on the body in the same plane. The body was about to move. Find the value of the coefficient of static friction between the body and the plane.

(6) A body of weight W kg.wt was placed on a rough horizontal plane. The coefficient of static friction between it and the body = $\frac{1}{3}$, affected by two horizontal forces of magnitudes 3, 5 kg.wt and the measure of the angle between them is 60°. The body was about to move. Find the value of W.

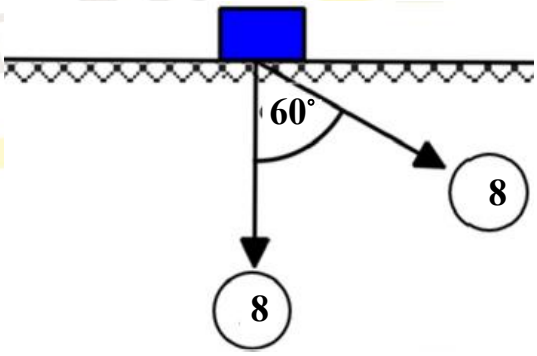
(7) In the opposite figure:
If the coefficient of static friction between the body and the rough plane is $\frac{\sqrt{3}}{3}$, find the value of θ . if the body is about to move.
(Where the forces are measured in Newtons)



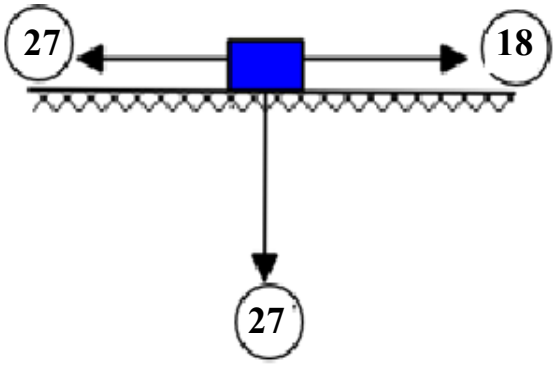
(8) In the opposite figure:
If the coefficient of static friction between the body and the plane $\frac{2\sqrt{3}}{3}$ and the body is about to move, find the value of: F.
(Where the forces are measured in Newtons



(9) In the opposite figure:
If the body is balanced under the action of the forces shown in the figure on a rough horizontal plane, find the coefficient of static friction between the body and the plane.
(Where the forces are measured in Newtons)



(10) In the opposite figure:
If the body is about to move under the action of the forces shown in the figure on a rough horizontal plane,
find the coefficient of static friction between the body and the plane.
(Since the forces are measured in Newtons)



(11) A body of weight 90 Newton was placed on a rough inclined plane inclined to the horizontal at an angle whose sine = $\frac{5}{13}$ It was observed that the body is about to move under the action of its weight only.
Find the coefficient of static friction between the body and the plane.

(12) A body was placed on a rough inclined plane inclined to the horizontal at an angle of measure 30°. The coefficient of static friction between the body and the plane was $\frac{\sqrt{3}}{6}$. Explain and state the reason why the body cannot remain in equilibrium on the plane.

(13) A body of weight 200 Newton was placed on a rough inclined plane inclined to the horizontal at an angle of measure 30° . A force was applied to the body in the direction of the line of the greatest slope of the plane upward, so the body was about to move up the plane. If the coefficient of static friction between the body and the plane was $\frac{1}{\sqrt{3}}$.
Find the magnitude of the force.

(14) A body of weight 10 Newtons was placed on a rough inclined plane inclined to the horizontal at an angle of measure 30°. A force of magnitude 10 Newtons was applied to it in the direction of the line of the greatest slope of the plane upward, so the body was about to move downward. Find the magnitude of the force if it is known that the coefficient of static friction between the body and the plane is $\frac{\sqrt{3}}{15}$

(15) A body of 10 Newtons weight was placed on a rough inclined plane inclined to the horizontal at an angle of measure θ°. A force of magnitude 6 Newtons. It was applied to it in the direction of the line of the greatest slope of the plane upward , so the body was about to move upwards. Find the measure of the angle θ if it is known that the coefficient of static friction between the body and the plane is $\frac{\sqrt{3}}{15}$.

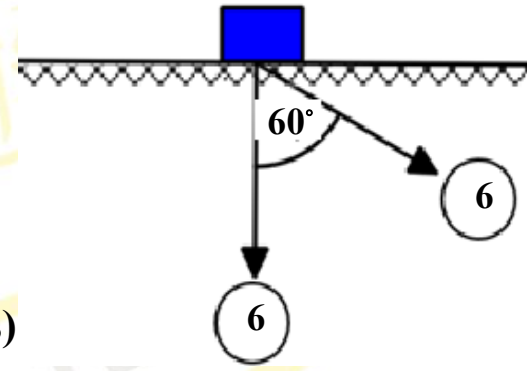
The First Group

(1) A body of weight 16 kg.wt is placed on a rough horizontal plane. A horizontal force of magnitude F kg.wt affected it, making it about to move. If the measure of the angle between the resultant reaction and the limiting friction force is θ° , where $\cos\theta = \frac{4}{5}$, find the magnitude of the resultant reaction.

(2) A body of weight 12 kg.wt. is placed on a rough horizontal plane. A horizontal force acted on it, making it about to move. If the resultant reaction is 15 kg .wt , find the coefficient of static friction between the body and the plane.

(3) A body weight 40 kg.wt is placed on a rough horizontal plane. Two perpendicular horizontal forces of magnitude 6, 8 kg. wt affected the body in the same plane, making the body about to move. Find the coefficient of static friction between the body and the plane.

(4) In the opposite figure:
If the body is in equilibrium under the influence of the forces shown in the figure on a rough horizontal plane, find the coefficient of static friction between the body and the plane.
(Where forces are measured in Newtons)



(5) A body of weight 250 Newtons was placed on a rough inclined plane inclined to the horizontal at an angle of measure 30°. A force was applied to the body in the direction of the line of the greatest slope upward of the plane, so the body was about to move upwards to the plane. If the coefficient of static friction between the body and the plane is $\frac{1}{\sqrt{3}}$, find the magnitude of the force.

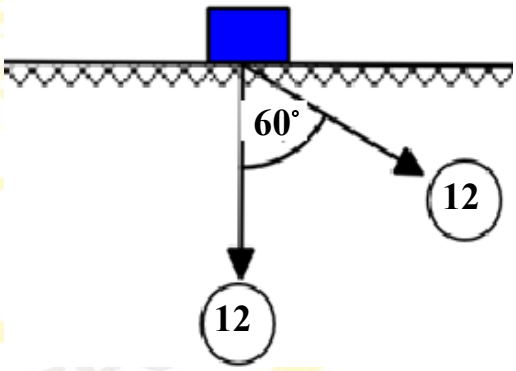
The Second Group

(1)A body of weight 18 kg.wt is placed on a rough horizontal plane. A horizontal force of magnitude F kg.wt affected it, making it about to move. If the measure of the angle between the resultant reaction and the limiting friction force is θ° , where $\cos\theta = \frac{3}{5}$, find the magnitude of the resultant reaction.

(2)A body of weight 32 kg .wt is placed on a rough horizontal plane. A horizontal force acted on it, making it about to move. If the resultant reaction is 40 kg .wt , find the coefficient of static friction between the body and the plane.

(3) A body weight 39 kg.wt is placed on a rough horizontal plane. Two perpendicular horizontal forces of magnitude 5, 12 kg. wt act on the body in the same plane, making the body about to move. Find the coefficient of static friction between the body and the plane.

(4) In the opposite figure:
If the body is in equilibrium under the influence of the forces shown in the figure on a rough horizontal plane, find the coefficient of static friction between the body and the plane.
(Where forces are measured in Newtons)



(5) A body of weight 120 Newtons was placed on a rough inclined plane inclined to the horizontal at an angle of measure 30° . A force was applied to the body in the direction of the line of the greatest slope upward of the plane, so the body was about to move upwards to the plane. If the coefficient of static friction between the body and the plane is $\frac{1}{\sqrt{3}}$, find the magnitude of the force.

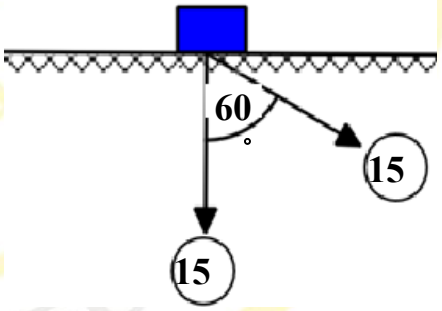
The Third Group

(1) A body of weight 32 kg.wt is placed on a rough horizontal plane. A horizontal force of magnitude F kg.wt acts on it, making it about to move. If the measure of the angle between the resultant reaction and the limiting friction force is θ° , where $\cos\theta = \frac{4}{5}$, find the magnitude of the resultant reaction.

(2) A body of weight 48 kg .wt is placed on a rough horizontal plane . A horizontal force acted on it, making it about to move. If the magnitude of the resultant reaction is 52 kg .wt , find the coefficient of static friction between the body and the plane.

(3) A body weight 60 kg.wt is placed on a rough horizontal plane. Two perpendicular horizontal forces of magnitudes 9 , 12 kg .wt affected the body in the same plane, making the body about to move. Find the value of the coefficient of static friction between the body and the plane.

(4) In the opposite figure:
If the body is in equilibrium under the influence of the forces shown in the figure on a rough horizontal plane, find the coefficient of static friction between the body and the plane.
(Where forces are measured in Newtons)



(5) A body of weight 90 Newtons was placed on a rough inclined plane inclined to the horizontal at an angle of measure 30° . A force was applied to the body in the direction of the line of the greatest slope upward of the plane, so the body was about to move upwards to the plane. If the coefficient of static friction between the body and the plane is $\frac{1}{\sqrt{3}}$, find the magnitude of the force.