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

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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 السابع

لجنة الإعداد

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

ترجمة

أ/ محمود سليمان نظيم

مراجعة الترجمة

أ/ شريف البرهامى

Classroom Performance (Week Seven) - Mathematics Applications

(1) A person pushes a body of weight 105 Newtons with a horizontal force of magnitude 70 Newtons on a rough horizontal ground, and the body was about to move. Find the coefficient of static friction between the body and the ground.

(2) A body of weight 100 Newtons was placed on a rough horizontal plane, the coefficient of static friction between it and the body is $\frac{3}{4}$. Find the magnitude of the horizontal force that makes the body about to move on the plane.

(3) A body of weight 135 dynes was placed on a rough horizontal plane, the coefficient of static friction between it and the body is $\frac{\sqrt{3}}{3}$. Find the magnitude of the horizontal force that makes the body about to move on the plane, as well as the magnitude of the resulting reaction.

(4) A body of weight 50 Newtons was placed on a rough horizontal plane, the coefficient of static friction between it and the body is $\frac{3}{5}$. If a horizontal force of 20 Newtons acts on it, find the magnitude of the friction force.

(5) A body of weight 14 Newtons was placed on a rough horizontal plane and tied to a horizontal string passing over a small smooth pulley fixed at the edge of the plane and a weight of magnitude 7 Newtons was hanging from the other end. The body was about to move. Find the magnitude of the frictional force and the coefficient of static friction between the body and the plane.

(6)A body of weight (W) Newton was placed on a rough horizontal plane. the coefficient of static friction between the body and the plane is $\frac{1}{4}$. If a horizontal force of 25 Newtons acts on it, it would make it about to move. Find the magnitude of the body's weight.

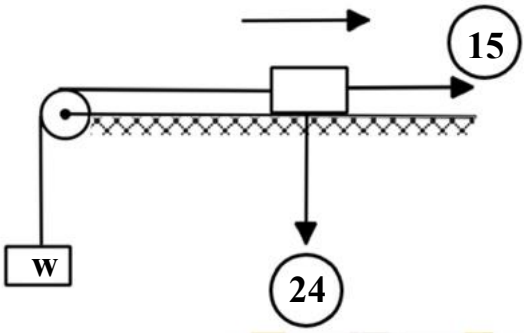
(7) A body of weight 7 Newtons was placed on a rough horizontal plane. The coefficient of static friction between it and the body is $\frac{3}{7}$. If a horizontal force was applied to it, it would try to move it. Find the interval to which the frictional force belongs.

(8) A body of weight 27 Newtons was placed on a rough horizontal plane . a horizontal force of magnitude 9 Newtons was applied to it, so the body was about to move. If the weight of the body increased by 18 Newtons. Find the magnitude of the horizontal force that would make the body about to move in this case.

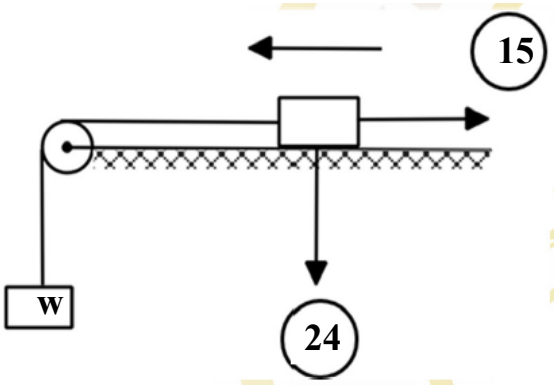
(9) A body of weight 50 Newtons was placed on a rough horizontal plane. A horizontal force of magnitude 25 Newton acted on it, causing the body is about to move. Find the magnitude of the resulting reaction.

(10) A body of weight 60 Newtons was placed on a rough horizontal plane. The coefficient of static friction between it and the body is $\frac{3}{5}$, the body was affected by a horizontal force that caused it about to move on the plane. Find the magnitude and direction of the resulting reaction.

(11) In the opposite figure:
If the coefficient of static friction between the body and the plane is equal to $\frac{1}{3}$, Find the magnitude of (W) so that the body is about to move in the direction of the force of 15 Newtons.



(12) In the opposite figure:
If the coefficient of static friction between the body and the plane is equal to $\frac{1}{3}$, Find the magnitude of (W) so that the body is about to move in the direction opposite to the force of 15 Newtons.



(13) A body of weight 260 Newtons is placed on a rough horizontal plane and is to be pulled with a rope inclined upwards at an angle of measure 30° . If the coefficient of static friction is equal to $\frac{\sqrt{3}}{3}$, find the magnitude of tension required to make the body is about to move.

(14) A body weighing $6\sqrt{3}$ Newtons is placed on a rough horizontal plane and a force of $6\sqrt{3}$ Newtons acts on it in a direction that makes an angle of measure 30° with the plane downwards, making the body is about to move , Find the coefficient of static friction between the body and the plane.

(15) A body of weight 20 Newtons is placed on a rough horizontal plane and a force of $10\sqrt{2}$ Newtons acts on it in a direction that makes an angle of measure 45° with the plane downwards, making the body is about to move . Find the coefficient of static friction between the body and the plane as well as the magnitude of the resulting reaction.

Homework (Week Seven) - Mathematics Applications

(1) A person pushes a body of weight 75 Newtons with a horizontal force of 45 Newtons on a rough horizontal ground, and the body was about to move. Find the coefficient of static friction between the body and the ground.

(2) A body of weight 90 Newtons was placed on a rough horizontal plane. the coefficient of static friction between it and the body is $\frac{3}{5}$. Find the magnitude of the horizontal force that makes the body about to move on the plane.

(3) A body of weight 30 dynes was placed on a rough horizontal plane. The coefficient of static friction between it and the body is $\frac{\sqrt{3}}{3}$. Find the magnitude of the horizontal force that makes the body about to move on the plane, as well as the magnitude of the resulting reaction.

(4) A body of weight 27 Newtons was placed on a rough horizontal plane. The coefficient of static friction between it and the body is $\frac{2}{3}$. If a horizontal force of 15 Newtons acts on it, find the magnitude of the friction force.

(5) A body of weight 15 Newtons was placed on a rough horizontal plane and tied to a horizontal string passing over a small smooth pulley fixed at the edge of the plane and a weight of 3 Newtons was hanging from the other end. The body was about to move. Find the magnitude of the frictional force and the coefficient of static friction between the body and the plane.

(6) A body of weight (W) Newton was placed on a rough horizontal plane. the coefficient of static friction between the body and the plane is $\frac{1}{3}$. If a horizontal force of 27 Newtons acts on it, it would make it about to move. Find the magnitude of the body's weight.

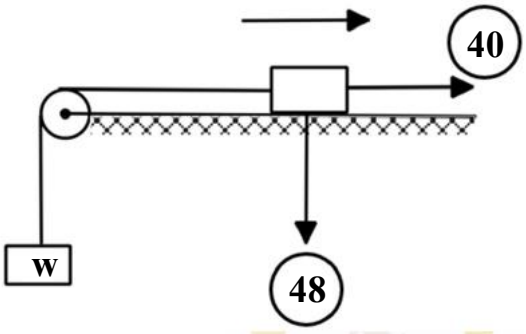
(7) A body of weight 5 Newtons was placed on a rough horizontal plane. The coefficient of static friction between it and the body is $\frac{2}{5}$. If a horizontal force was applied to it, it would try to move it. Find the interval to which the frictional force belongs.

(8) A body of weight 15 Newtons was placed on a rough horizontal plane . a horizontal force of 12 Newtons acts on it, so the body was about to move. If the weight of the body increased by 13 Newtons. Find the magnitude of the horizontal force that would make the body about to move in this case.

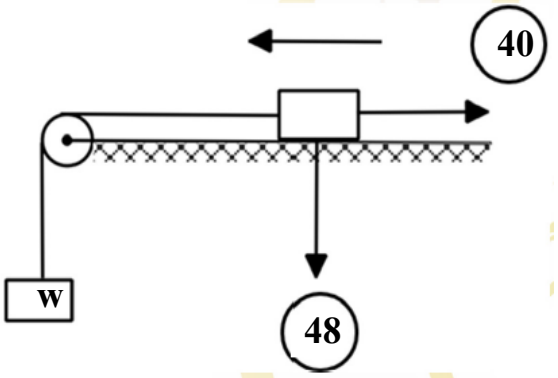
(9) A body of weight 15 Newtons was placed on a rough horizontal plane. A horizontal force of 7.5 Newton acted on it, causing the body is about to move. Find the magnitude of the resulting reaction.

(10) A body of weight 50 Newtons was placed on a rough horizontal plane. The coefficient of static friction between it and the body is $\frac{2}{5}$, the body was affected by a horizontal force that caused it about to move on the plane. Find the magnitude and direction of the resulting reaction.

(11) In the opposite figure:
If the coefficient of static friction between the body and the plane is equal to $\frac{1}{2}$, find the magnitude of (W) so that the body is about to move in the direction of the force of 40 Newtons.



(12) In the opposite figure:
If the coefficient of static friction between the body and the plane is equal to $\frac{1}{2}$, find the magnitude of (W) so that the body is about to move in the direction opposite to the force of 40 Newtons.



(13) A body of weight 240 Newtons is placed on a rough horizontal plane and is to be pulled with a rope inclined upwards at an angle of measure 30° . If the coefficient of static friction is equal to $\frac{\sqrt{3}}{3}$, find the magnitude of tension required to make the body is about to move.

(14) A body weighing $50\sqrt{3}$ Newtons is placed on a rough horizontal plane and a force of $50\sqrt{3}$ Newtons acts on it in a direction that makes an angle of measure 30° with the plane downwards, making the body is about to move , Find the coefficient of static friction between the body and the plane.

(15) A body of weight 10 Newtons is placed on a rough horizontal plane and a force of $5\sqrt{2}$ Newtons acts on it in a direction that makes an angle of measure 45° with the plane downwards, making the body is about to move . Find the coefficient of static friction between the body and the plane as well as the magnitude of the resulting reaction.

Weekly Assessment (Week Seven) - Mathematics Applications

First Group

(1) A person pushes a body of weight 175 Newtons with a horizontal force of 70 Newtons on a rough horizontal ground. The body was about to move. Find the coefficient of static friction between the body and the ground.

(2) A body of weight 20 Newtons was placed on a rough horizontal plane. The coefficient of static friction between it and the body $\frac{4}{5}$. Find the magnitude of the horizontal force that makes the body about to move on the plane.

(3) A body of weight 60 Newtons was placed on a rough horizontal plane. The coefficient of static friction between it and the body is $\frac{3}{4}$. If a horizontal force of 40 Newtons acts on it, find the magnitude of the frictional force.

(4) A body of weight 16 Newtons was placed on a rough horizontal plane and tied to a horizontal string passing over a small smooth pulley fixed at the edge of the plane. A weight of 4 Newtons was hanging from the other end. The body was about to move. Find the magnitude of the frictional force and the coefficient of static friction between the body and the plane.

(5) A body of weight $10\sqrt{3}$ Newton was placed on a rough horizontal plane and a force of $10\sqrt{3}$ Newton acts on it in a direction that makes an angle of measure 30° with the plane downward, making the body about to move. Find the coefficient of static friction between the body and the plane.

Second Group

(1) A person pushes a body of weight 60 Newtons with a horizontal force of 45 Newtons on a rough horizontal ground, so the body was about to move. Find the coefficient of static friction between the body and the ground.

(2) A body of weight 30 Newtons was placed on a rough horizontal plane. The coefficient of static friction between it and the body is $\frac{1}{2}$. Find the magnitude of the horizontal force that makes the body about to move on the plane.

(3) A body of weight 20 Newtons was placed on a rough horizontal plane. The coefficient of static friction between it and the body is $\frac{4}{5}$, If a horizontal force of 12 Newtons was applied to it, find the magnitude of the friction force.

(4) A body of weight 20 Newtons was placed on a rough horizontal plane and tied to a horizontal string passing over a small smooth pulley fixed at the edge of the plane and a weight of 5 Newtons was hanging from its other end. The body was about to move. Find the magnitude of the frictional force and the coefficient of static friction between the body and the plane.

(5) A body weighing $30\sqrt{3}$ Newton was placed on a rough horizontal plane and a force of $30\sqrt{3}$ Newton acts on it in a direction that makes an angle of measure 30° with the plane downwards, making the body about to move. Find the coefficient of static friction between the body and the plane.

Third Group

(1) A person pushes a body of weight 80 Newtons with a horizontal force of 40 Newtons on a rough horizontal ground. The body was about to move. Find the coefficient of static friction between the body and the ground.

(2) A body of weight 60 Newtons was placed on a rough horizontal plane. the coefficient of static friction between it and the body is $\frac{3}{4}$. Find the magnitude of the horizontal force that makes the body about to move on the plane.

(3) A body of weight 30 Newtons is placed on a rough horizontal plane. The coefficient of static friction between it and the body is $\frac{1}{2}$. If a horizontal force of 14 Newtons acts on it, find the magnitude of the friction force.

(4) A body of weight 21 Newtons is placed on a rough horizontal plane and tied to a horizontal string passing over a small smooth pulley fixed at the edge of the plane. A weight of 7 Newtons hangs from its other end. The body is about to move. Find the magnitude of the friction force and the coefficient of static friction between the body and the plane.

(5) A body weighing $20\sqrt{3}$ Newtons is placed on a rough horizontal plane and a force of $20\sqrt{3}$ Newton acts on it in a direction that makes an angle of measure 30° with the plane downward, making the body about to move. Find the coefficient of static friction between the body and the plane.