

## P11 - 3.1 - $F = ma$ Newton's Laws Hmk

What is the force required to accelerate a 12 kg object at 5 m/s squared?

What is the force required to accelerate a 12 kg object at 7 m/s squared?

What is the force required to accelerate an 12 kg object at 5 m/s squared with the frictional force of 2 N?

What is the force to accelerate a 12kg object at 5 m/s squared with the frictional force of 3 N?

A force of 60 N is applied to a 12 kg object. Find its acceleration.

A force of 16 N accelerates an object at 4 m/s squared. Find the mass of the object. What is the objects weight?

An applied 36 N on a 9 kg object accelerates it at 3 m/s squared? What is the frictional force?

## P11 - 3.2 - $F_f = \mu F_n$ Dynamics Hmk

What is the force required to accelerate a 20 kg object at 4 m/s squared with the coefficient of friction of  $\mu = 0.1$ ?

What is the force required to accelerate a 36 kg object at 6 m/s squared with the coefficient of friction of  $\mu = 0.3$ ?

## P11 - 3.2 - Kinematics Dynamics Link

What is the force required to accelerate a 10 kg object from rest to 12 m/s in eight seconds?

How far did the object go?

What is the velocity after seven seconds?

How long will it take to reach 36 m/s?

What is the mass of an object which can accelerate at 2 m/s squared from rest to 8 m/s in 20 m?

## P11 - 3.3 - Tension WS

A person pulls with a 80 Newton force on a 40 kg block attached by a string to a 30 kg block. What is the acceleration of the system? What is the tension on the 40 kg block and the tension on the 30 kg block? Ignore friction.

A person pulls with a 100 Newton force on a 40 kg block attached by a string to a 30 kg block with a frictional force of 35 N. What is the acceleration of the system? What is the tension on the 40 kg block and the tension on the 30 kg block?

A person pulls on with a 200 Newton force a 40 kg block attached by a string to a 30 kg block with a coefficient of friction of 0.2. What is the acceleration of the system? What is the tension on the 40 kg block and the tension on the 30 kg block?

## P11 - 3.3 - Tension WS

A 50 kg and a 20 kg block are attached to a pulley. What is the acceleration of the system? What is the tension on the 50 kg block and what is the tension on the 20 kg block.

A 15 kg block is suspended in midair connected to a pulley and another 5 kg object on a horizontal surface. What is the acceleration of the system? What is the tension on the 15 kg block and what is the tension on the 5 kg block? Ignore friction.

## P11 - 3.4 - Elevator Hmk

What is the weight of a 30 kg object on a scale in Newton's in a stationary elevator?

What is the weight of a 30 kg object on a scale in a elevator moving at a constant velocity of 10 m/s?

What is the weight of a 30 kg object on a scale in an elevator accelerating upwards at 3 m/s squared?

What is the weight of a 30 kg object on a scale and an elevator accelerating downwards at 5 m/s squared?

## P12 - 3.5 - Dynamics Trig HMK

Find the acceleration of the force of 80 N on a 25 kg object hold at an angle of  $30^\circ$  above the horizontal on a frictionless surface.

Find the acceleration of the force of 120 N on a 55 kg object hold at an angle of  $20^\circ$  above the horizontal on a frictionless surface.

Find the mass of an object which accelerates at  $5 \text{ m/s}^2$  by a force of 60 N at an angle of  $15^\circ$  above the horizontal on a frictionless surface.

Find the force required to accelerate an 8 kg object at an angle of  $40^\circ$  above the horizontal on a frictionless surface.

## P12 - 3.6 - Dynamics Trig Fric Slope HMK

Find the acceleration of the force of 45 N on a 2 kg object hold at an angle of  $15^\circ$  above the horizontal with a coefficient of friction of 0.25.

Find the acceleration of the force of 160 N on a 50 kg object hold at an angle of  $65^\circ$  above the horizontal with a coefficient of friction of 0.15.

Find the mass of an object which accelerates at  $12 \text{ m/s}^2$  by a force of 140 N at an angle of  $20^\circ$  above the horizontal with a coefficient of friction of 0.1.

Find the force required to accelerate a 18 kg object at an angle of  $55^\circ$  above the horizontal with a coefficient of friction of 0.4.



## P12 - 3.6 - Dynamics Fric Slope HMK

Find the acceleration of an 8 kg block sliding down a  $40^\circ$  frictionless slope.

Find the acceleration of an 26 kg block sliding down a  $60^\circ$  frictionless  $60^\circ$  slope.

Find the acceleration of a 5 kg block sliding down a  $45^\circ$  slope with a coefficient of friction of 0.2.

Find the acceleration of a 12 kg block sliding down a  $20^\circ$  slope with the coefficient of friction of 0.05.

## P12 - 3.6 - Dynamics Pull Fric Slope HMK

Find the force required to accelerate a 12 kg object at 5 m/s squared up a frictionless 25° slope

Find the acceleration of an 80 Newton force on a 8 kg object up a frictionless slope of 42° .

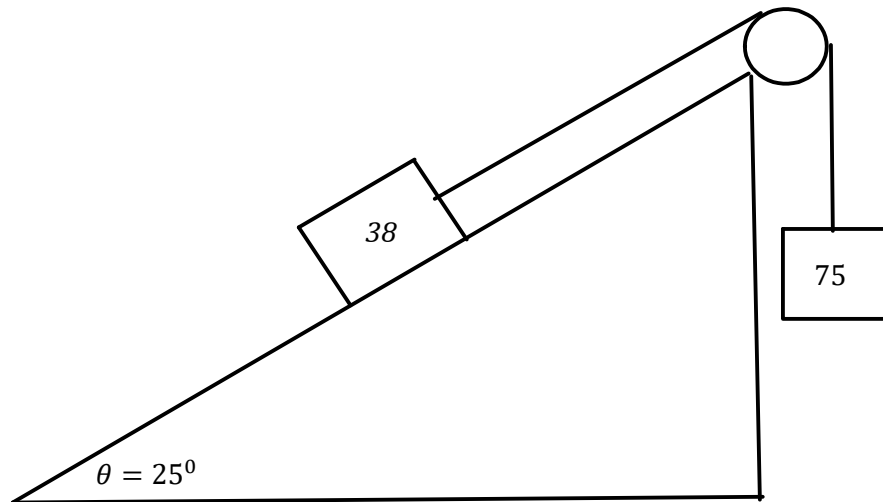
Find the force required to accelerate a 16 kg object at 3 m/s squared up a 35° slope with a coefficient of friction of 0.15.

Find the acceleration of a 65 Newton force on a 10 kg object up a slope of 48° with the coefficient of friction of 0.2.

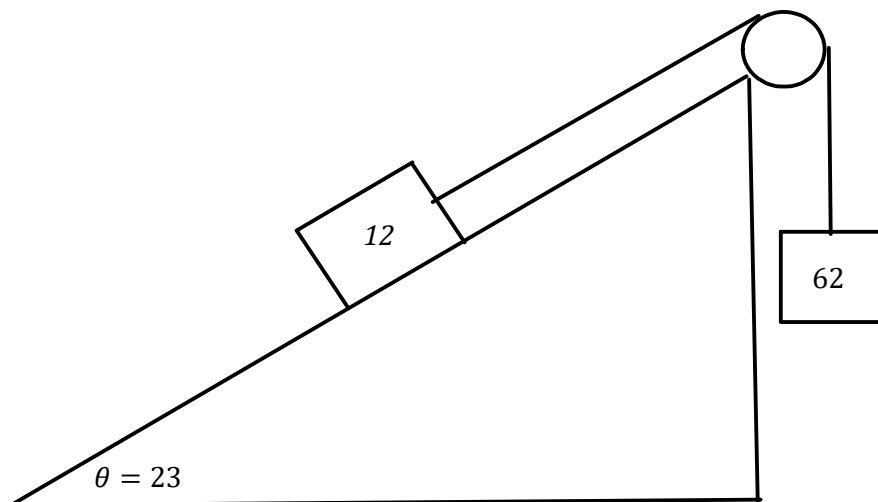


## P12 - 3.6 - Dynamics Pulley Fric Up Slope HMK

Find the acceleration of the system and the tension on both blocks?

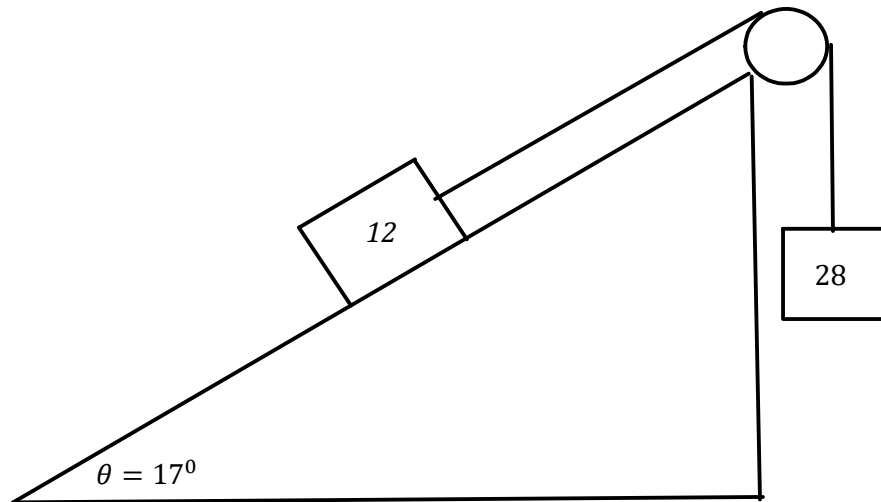


Find the acceleration of the system and the tension on both blocks?



# P12 - 3.6 - Dynamics Pulley Fric Up Slope HMK

Find the acceleration of the system and the tension on both blocks?



Find the acceleration of the system and the tension on both blocks?

