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NPTEL

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Courses » Mechanics of Human Movement

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Unit 2 - Pre-requisite

Course outline

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the portal

Pre-requisite

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Week 3

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Week 6

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Week 12

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Assignment 0

The due date for submitting this assignment has passed.

As per our records you have not submitted this **Due on 2018-07-30, 23:59 IST.**
assignment.

1) **1 point**
Determine the weight of a Lunar rover on earth and moon, respectively. The mass of rover is 500 kg.
($g_{\text{earth}} = 9.81 \text{ m/s}^2$; $g_{\text{moon}} = 1.62 \text{ m/s}^2$)

- 81 N and 490 N
- 810 N and 4905 N
- 4905 N and 810 N
- 490 N and 81 N

No, the answer is incorrect.
Score: 0

Accepted Answers:
4905 N and 810 N

2) A Chandelier of weight 6 kg is suspended from a hook on the ceiling of a room through a chain of weight 2 kg. The hook pulls the chain with a force of **1 point**

- 59 N
- 20 N
- 39 N
- 78 N

No, the answer is incorrect.
Score: 0

Accepted Answers:
78 N

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A project of



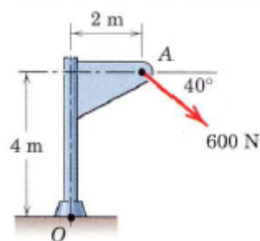
In association with



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Ministry of Human Resource De

Calculate the magnitude of the moment of the 600 N force about the base point O.



- 2610 Nm
- 2830 Nm
- 2400 Nm
- 1200 Nm

No, the answer is incorrect.

Score: 0

Accepted Answers:

2610 Nm

4)

1 point

A 1 kg block is resting on a surface with coefficient of friction $\mu=0.1$. A force of 0.8 N is applied to the block as shown in figure. The friction force is



- 0
- 0.8 N
- 0.98 N
- 1.2 N

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.8 N

5) Assume a typical cartesian coordinate system where the positive x-axis is to the right and the positive y-axis is pointing upwards. A hook is subjected to two forces – Force $F_1=150\text{N}$ pulling it at an angle of 10° CW from the positive y-axis and Force $F_2=100\text{N}$ pulling it at an angle of 15° CCW to the positive x-axis.

Find the resultant force on the hook.

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: Range) 212.5,213

1 point

6)

Assume a typical cartesian coordinate system where the positive x-axis is to the right and the positive y-axis is pointing upwards. A hook is subjected to two forces – Force $F_1 = 150\text{N}$ pulling it at an angle of 10° CW from the positive y-axis and Force $F_2 = 100\text{N}$ pulling it at an angle of 15° CCW to the positive x-axis.

Find the resultant angle on the hook.

No, the answer is incorrect.

Score: 0

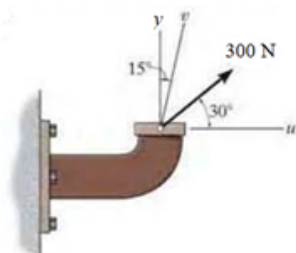
Accepted Answers:

(Type: Range) 54.76,54.8

1 point

7) In the figure below, resolve the force into

Components along the u axes



(Hint: parallelogram law for addition of forces)

No, the answer is incorrect.

Score: 0

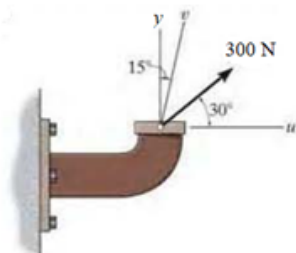
Accepted Answers:

(Type: Range) 219,221

1 point

8) In the figure below, resolve the force into

Components along the v axes



(Hint: parallelogram law for addition of forces)

No, the answer is incorrect.

Score: 0

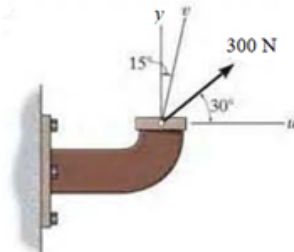
Accepted Answers:

(Type: Range) 154,156

1 point

9) In the figure below, resolve the force into

Mutually perpendicular components along the u axes



No, the answer is incorrect.

Score: 0

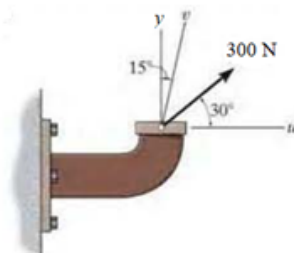
Accepted Answers:

(Type: Range) 259,261

1 point

10) In the figure below, resolve the force into

Mutually perpendicular components along the y axes



No, the answer is incorrect.

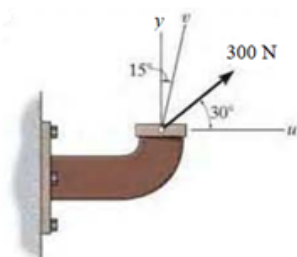
Score: 0

Accepted Answers:

(Type: Range) 149,151

1 point

11) In the figure below, what are the projections of the force onto the u axes?



No, the answer is incorrect.

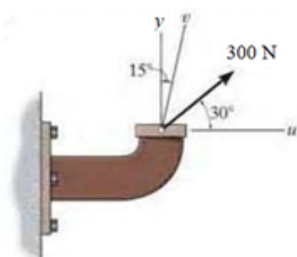
Score: 0

Accepted Answers:

(Type: Range) 259,261

1 point

12) In the figure below, what are the projections of the force onto the v axes?



No, the answer is incorrect.

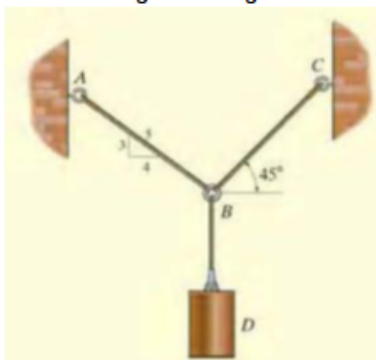
Score: 0

Accepted Answers:

(Type: Range) 211,213

1 point

13) Draw the free body diagram and determine the tensions in the cables AB to support a 60 kg weight. Express your answers to three significant figures.



No, the answer is incorrect.

Score: 0

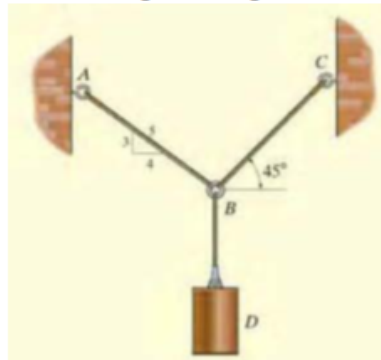
Accepted Answers:

(Type: Range) 419,421

1 point

14)

Draw the free body diagram and determine the tensions in the cables BC to support a 60 kg weight. Express your answers to three significant figures.



No, the answer is incorrect.

Score: 0

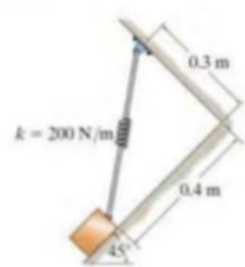
Accepted Answers:

(Type: Range) 475,477

1 point

15)

The block has a mass of 5 kg and rests on a smooth plane. Determine the unstretched length of the spring.



No, the answer is incorrect.

Score: 0

Accepted Answers:

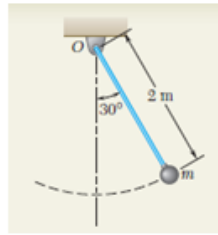
(Type: Range) 0.27,0.29

1 point

16)

1 point

The bob of a 2 m pendulum describes an arc of circle in a vertical plane. If the tension in the cord is 2.5 times the weight of the bob for the position shown, find the tangential and normal acceleration of the bob in that position.



- 4.9 m/s² and 18.02 m/s²
- 4.9 m/s² and 16.03 m/s²
- 2.45 m/s² and 8 m/s²
- 9.8 m/s² and 32 m/s²

No, the answer is incorrect.

Score: 0

Accepted Answers:

4.9 m/s² and 16.03 m/s²

End