

# Fundamentals of Dynamics

Would you like to refresh your knowledge of the Laws of motion?

☐ Opzione 1

Does Newton's 1st Law require velocity to be parallel to the applied force? \* 3 points

- ☐ Yes
- ☐ No
- ☐ It depends on how great is the mass
- ☐ It depends on the force type

**Correct answer**

☒ No

**Feedback for correct answers**

*correct*

**Feedback for incorrect answers**

*incorrect*

When an object's velocity is zero, can there be forces upon the object? \* 3 points

- ☐ Yes
- ☐ No
- ☐ Yes, but non strong enough to cause motion
- ☐ We can't say

Correct answer

- ☒ Yes

Feedback for correct answers

*correct*

Feedback for incorrect answers

*incorrect*

The SI unit for acceleration is \*

3 points

- ☐ m/kg
- ☐ m/s
- ☐ m/s<sup>2</sup>
- ☐ kg\*m/s<sup>2</sup>

Correct answer

- ☒ m/s<sup>2</sup>

Feedback for correct answers

*correct*

Feedback for incorrect answers

*incorrect*

The SI unit for force is equivalent to \*

3 points

- ☐ m/kg
- ☐ m/s
- ☐ m/s<sup>2</sup>
- ☐ kg\*m/s<sup>2</sup>

Correct answer

- ☒ kg\*m/s<sup>2</sup>

Feedback for correct answers

*correct*

Feedback for incorrect answers

*incorrect*

In the expression "balanced object", what does "balanced" refer to? \*

3 points

- ☐  $v=0$
- ☐  $a=0$
- ☐ Sum of forces = 0 N
- ☐ homogeneous density

Correct answers

- ☒  $a=0$
- ☒ Sum of forces = 0 N

Feedback for correct answers

*correct*

Feedback for incorrect answers

*incorrect*

## What is Newton's 3rd law?

3 points

- ☐  $F = m \cdot a$
- ☐ Object at rest or in motion stay at rest or in motion unless acted on by an outside force
- ☐ As the speed of a falling object increases, air resistance increases
- ☐ When one body exerts a force on a second body, the second body simultaneously exerts a force equal in magnitude and opposite in direction on the first body.

### Correct answer

- ☒ When one body exerts a force on a second body, the second body simultaneously exerts a force equal in magnitude and opposite in direction on the first body.

### Feedback for correct answers

*correct*

### Feedback for incorrect answers

*incorrect*

A 30 kg block with a velocity of 50 m/s is encountering a constant 8 N friction force. What is the acceleration? \*

3 points

- ☐ 6 m/s<sup>2</sup>
- ☐ 0.26 m/s<sup>2</sup>
- ☐ 24 m/s<sup>2</sup>
- ☐ 6.24 m/s<sup>2</sup>

Correct answer

- ☒ 0.26 m/s<sup>2</sup>

Feedback for correct answers

*correct*

Feedback for incorrect answers

*incorrect*

A 30 kg block with a velocity of 50 m/s is encountering a constant 8 N friction force. How long does it takes the block to stop? \*

3 points

- ☐ 12' 6"
- ☐ 58"
- ☐ 240"
- ☐ 6' 12"

Correct answer

- ☒ 6' 12"

Feedback for correct answers

*Correct*

Feedback for incorrect answers

*Uncorrect*

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