



McRoberts Secondary

Dynamics Unit Test 2025-11-12



Personal Data

Family Name:
Given Name:
Signature:
checked

Registration Number

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9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9

In this section **no** changes or modifications must be made!

Scrambling

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Type

020

Exam ID(Physics 11)

25111200001

Please mark the boxes carefully: ☒ Not marked: ☐ or ☐

This document is scanned automatically. Please keep clean and do not bend or fold. For filling in the document please use a **blue or black pen**.

Only clearly marked and positionally accurate crosses will be processed!

Answers 1 - 15

	a	b	c	d
1	<input type="checkbox"/>	<input type="checkbox"/>		
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Answers 16 - 20

	a	b	c	d
16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a b c d

a b c d



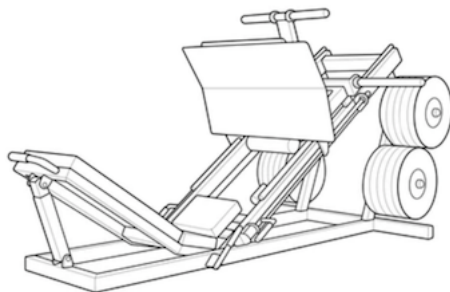
1. True or false? If an object is at rest, then the net force on the object must be zero.
 - a. True
 - b. False
2. True or false? The mass of an object on the moon is the same as its mass on earth.
 - a. True
 - b. False
3. True or false? If an object is moving to the left, then the net force on it must point to the left.
 - a. True
 - b. False
4. A box that weighs 100 N rests on a digital scale on the floor of an elevator. When would the scale measure a weight more than 100 N? *Select all that apply.*
 - a. moving upward with increasing speed.
 - b. moving upward with decreasing speed.
 - c. moving downward with increasing speed.
 - d. moving downward with decreasing speed.
5. A person of mass 39 kg pushes on a wall with 74 N of force. What is the magnitude of the force that the wall exerts on the person?
 - a. 74 N
 - b. 380 N
 - c. 7.6 N
 - d. 730 N
6. A rocket moves through outer space with a constant velocity of 9.8 m/s toward the Andromeda galaxy. What is the net force acting on the rocket?
 - a. A force equal to its weight on Earth, mg .
 - b. Cannot be determined without more information.
 - c. The net force is zero.
 - d. A force equal to the gravity acting on it.
7. An apple is falling straight down toward the ground. Take the weight of the apple to be the action force. What is the reaction force?
 - a. The apple's gravity pulling upward on the Earth.
 - b. The force of impact when the object hits the ground.
 - c. The air resistance pushing up on the apples.
 - d. There is no reaction force because the apple is not touching anything.
8. A box, of mass M , is suspended by a string from the ceiling inside an elevator. The elevator is traveling downward with a constant speed. The tension in the string is
 - a. less than Mg .
 - b. equal to Mg .
 - c. greater than Mg .
 - d. impossible to determine without knowing the speed.

9. The mass of an object is 94 kg. What is its weight on Earth?
- 94 N
 - 820 N
 - 9.6 N
 - 920 N
10. A net force of 822 N acts on an object, and it accelerates at 62 m/s/s in the direction of the net force. What is the mass of the object?
- 5.7 kg
 - 13 kg
 - 15000 kg
 - 0.08 kg
11. An box slides down an inclined plane with a constant velocity. The angle of incline is 55.0° . What is the coefficient of kinetic friction between the box and the inclined plane?
- 0.986
 - 0.772
 - 1.428
 - 1.265
12. What force is needed to keep a 59-kg box moving at a constant velocity across a warehouse floor if the coefficient of kinetic friction between the box and the floor is 0.60?
- 350 N
 - 35 N
 - 480 N
 - 310 N
13. Two forces act on an object. A 54-N force acts at 0° and a 64-N force acts at 90° . What is the magnitude of the equilibrant?
- 83.7 N
 - 94.2 N
 - 113 N
 - 79.8 N
14. Xavier pulls on a box with 28.0 N of force at 0° . Yuri pulls on the the same box with 17.0 N of force, at 90° . What is the angle of the net force?
- 72.6°
 - 59.4°
 - 31.0°
 - 61.2°
15. Charlie pulls on a box with 91.0 N of force at 179° . Dan pulls on the the same box with 71.0 N of force at 115° . What is the angle of the net force on the box?
- 27.0°
 - -116.6°
 - 1.4°
 - 151.4°

16. Two boxes connected by a light cord are on a frictionless table as shown in the diagram. The masses are $m_1 = 56 \text{ kg}$ and $m_2 = 140 \text{ kg}$. A 532-N force is applied horizontally on the right box. What is the tension in the cord?



- a. 424 N
 - b. 287 N
 - c. 380 N
 - d. 369 N
17. Two forces act on an object. A 27.0-N force acts at -122° . A 37.0-N force acts at 10° . What is the angle of their equilibrant?
- a. 178.3°
 - b. 145.2°
 - c. 172.1°
 - d. 143.3°
18. A box of mass 45 kg slides down a frictionless inclined plane. The angle of incline is 75° from the horizontal. What is the acceleration of the box?
- a. 11.0 m/s^2
 - b. 9.5 m/s^2
 - c. 13.0 m/s^2
 - d. 10.1 m/s^2
19. A box of mass 26 kg slides down an inclined plane with friction. The angle of incline is 69° and $\mu_k = 1.9$. What is the acceleration of the box?
- a. 0.6 m/s^2
 - b. 2.5 m/s^2
 - c. 6.5 m/s^2
 - d. 4.6 m/s^2
20. A leg press machine is inclined at 42.0° from the horizontal. The total mass to be pressed up is 117.0 kg . What force must the legs apply to move the mass at a constant velocity? Assume that friction is negligible.



- a. 812 N
- b. 869 N
- c. 117 N
- d. 767 N