Chapter 2 – Part 2

Exercises

Exercise 1

1) Whereas Aristotle relied on logic in explaining nature, Galileo relied on

A) logic also.

B) patterns.

C) experiment.

D) mathematics.

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Exercise 2

2) The scientist to first introduce the concept of inertia was

A) Aristotle.

B) Galileo.

C) Newton.

D) Copernicus.

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Exercise 3

3) An object in mechanical equilibrium is an object

A) at rest.

B) moving with constant velocity.

C) having no acceleration.

D) all of these.

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Exercise 4

4) When you stand at rest on a pair of bathroom scales, the readings on the scales will always

A) each be half your weight.

B) each equal your weight.

C) add up to equal your weight.

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Exercise 5

5) The force of friction on a sliding object is 10 N. The applied force needed to maintain a constant velocity is

A) more than 10 N.

B) less than 10 N.

C) 10 N.

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C) 10 N.

Exercise 6

6) A 300-kg bear grasping a vertical tree slides down at constant velocity. The friction force between the tree and the bear is

A) 30 N.

B) 300 N.

C) 3000 N.

D) more than 3000 N.

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Exercise 7

7) If your automobile runs out of fuel while you are driving, the engine stops but you do not come to an abrupt stop. The concept that most explains why is

A) inertia.

B) gravity.

C) acceleration.

D) resistance.

Exercise 7

7) If your automobile runs out of fuel while you are driving, the engine stops but you do not come to an abrupt stop. The concept that most explains why is

A) inertia.

B) gravity.

C) acceleration.

D) resistance.

Exercise 8

8) Whirl a rock at the end of a string and it follows a circular path. If the string breaks, the tendency of the rock is to

A) continue to follow a circular path.

B) follow a straight-line path.

C) increase its speed.

D) revolve in a smaller circle.

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Exercise 9

9) If no external forces are acting on a moving object, it will

A) continue moving at the same speed.

B) continue moving at the same velocity.

C) move slower and slower until it finally stops.

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Exercise 10

10) What is the net force on a bathroom scale when a 150 pound person standing on it?

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Zero.

His weight (down) = support force (up)

Exercise 11

11) Different materials, A,B, C, and D rest on a table. If mass A = 12 kg, B = 15 kg, C = 10 kg and D = 2kg,

From greatest to least, rank them by how much they resist being set into motion.

Exercise 11

11) Different materials, A,B, C, and D rest on a table. If mass A = 12 kg, B = 15 kg, C = 10 kg and D = 2kg,

From greatest to least, rank them by how much they resist being set into motion.

B > A > C > D

Exercise 12

12) Different materials, A,B, C, and D rest on a table. If mass A = 12 kg, B = 15 kg, C = 10 kg and D = 2kg,

From greatest to least, rank them by support (normal) force the table exert on them.

Exercise 12

12) Different materials, A,B, C, and D rest on a table. If mass A = 12 kg, B = 15 kg, C = 10 kg and D = 2kg,

From greatest to least, rank them by support (normal) force the table exert on them.

B > A > C > D

Exercise 13

13) Place a heavy book on a table and the table pushes up on the book. Why doesn't this upward push cause the book to rise from the table?

Exercise 14

14) In order to slide a heavy cabinet across the floor at constant speed, you exert a horizontal force of 600N. Is the force of friction between the cabinet and the floor greater than, less than, or equal to 600N?

Exercise 15

15) Two people each pull with 300N on a rope in a tug of war. What is the net force on the rope?

How much force is exerted in each person by the rope?

Exercise 16

16) Two forces act on a parachutist falling in air: weight and air drag. If the fall is steady, with no gain or loss of speed, then the parachutist is in dynamic equilibrium. How do the magnitudes of weight and air drag compare?

Exercise 17

(17) Burl and Paul have a total weight of 1300 N. The tensions in the ropes that support the scaffold they stand on add to 1700 N. The weight of the scaffold itself must be

a. 400 N.
b. 500 N.
c. 600 N.
d. 800 N.

Exercise 17

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