Name: _____ **Class:** _____ **Date:** _____ **ID: A**

PSN Chapter 4 Multiple Choice Test

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. The force of gravity on an object is called:
a. mass.
b. inertia.
c. weight.
d. volume.

____ 2. A unit of measurement used to indicate force is the:
a. newton.
b. gram.
c. meter.
d. scalar.

____ 3. A squeezing force applied to a spring is called:
a. tension.
b. friction.
c. compression.
d. equilibrium.

____ 4. A book is placed on a table. While the book exerts a downward gravitational force on the table, an upward _____ force is exerted by the table on the book.
a. gravitational
b. normal
c. tension
d. friction

____ 5. Of the four elementary forces of nature, the weakest force is called _____ force.
a. weak
b. electromagnetic
c. strong nuclear
d. gravitational

____ 6. A vector, such as force, can be represented by drawing an arrow. Which of the following statements is CORRECT?
a. The length of the arrow indicates the direction of the force.
b. The length of the arrow indicates the strength of the force.
c. The length of the arrow indicates the unit of force used.
d. The point of the arrow indicates the strength of the force.

____ 7. Of the following measurements, the one that would be incomplete without giving a direction is:
a. time.
b. temperature.
c. length.
d. force.

____ 8. On a vector drawing, Alexi decides to use a scale of 1.0 cm = 2.0 N. The force represented by an arrow 3.5 cm long would be:
a. 1.0 N
b. 2.0 N
c. 3.5 N
d. 7.0 N

____ 9. Jane's weight on the Moon would be less than her weight on Earth because:
   a. she has less mass on the Moon than on Earth.
   b. there is no atmosphere on the Moon.
   c. the Moon has less mass than Earth.
   d. the radius of the Moon is greater than the radius of Earth.

____ 10. A 50-newton weight is hanging from a string tied to the ceiling. What is the tension in the string?
   a. 0 N
   b. 5 N
   c. 50 N
   d. 490 N

____ 11. The relationship between the weight and mass of an object is given by the formula, $W = mg$, where W = weight, m = mass and g = the strength of gravity. On the Moon, the strength of gravity is 1.6 N/kg. A 22-kilogram rock on the Moon would weigh:
   a. 2.2 N
   b. 14 N
   c. 35 N
   d. 220 N

____ 12. Frank's mass has been measured as 60 kilograms. On the Moon, his mass would be about:
   a. 10 kg
   b. 60 kg
   c. 100 kg
   d. 600 kg

____ 13. At Earth's surface a 1.0 kilogram has a weight of 9.8 newtons. 78.4 newtons resting on the ground has a mass of:
   a. 1.0 kg
   b. 8.0 kg
   c. 68.6 kg
   d. 88.2 kg

____ 14. The name for the type of friction that exists between two non-moving surfaces is referred to as _____ friction.
   a. static
   b. sliding
   c. compression
   d. free-body

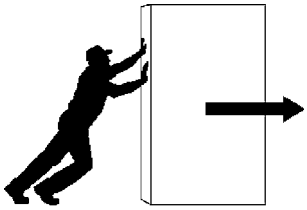
____ 15. Friction between two surfaces may reduced by all of the following methods EXCEPT:
   a. putting liquid such as oil between the surfaces.
   b. pushing the two surfaces together with a greater force.
   c. separating the two surfaces with a cushion of air.
   d. using ball bearings between the two surfaces changing sliding motion to rolling motion.

____ 16. A force that always tends to slow the motion of an object on a surface is:
   a. mass.
   b. weight.
   c. friction.
   d. inertia.

____ 17. The friction force acting on an object will be greatest if the object is:
a. not moving.
b. moving with increasing speed.
c. moving with decreasing speed.
d. moving with constant speed.

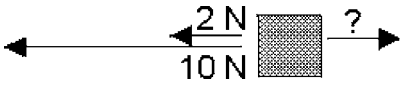
____ 18. A small boy pushes a chair across a waxed floor. A friend sits down in the chair, and the boy pushes the chair across the floor again. How does the weight of the friend in the chair affect the friction between the chair and the floor?
a. Friction stays the same because the chair is moving.
b. Friction is decreased because inertia increases.
c. Friction increases because the floor and chair are pushed together harder.
d. Friction stays the same because the forces act in different directions.

____ 19. Luka pushes a box across the floor in the direction shown by the arrow in the diagram below:



The direction of the friction force acting on the box is:
a. up.
b. down.
c. right.
d. left.

____ 20.



Three forces are acting on an object as shown in the diagram. The object is not moving. Two forces are 2 newtons and 10 newtons. The third force is:
a. 8 newtons.
b. 10 newtons.
c. 12 newtons.
d. 20 newtons.

The diagram below shows a cyclist moving along a highway. 4 forces, represented by arrows A, B, C, and D are acting on the cyclist as she pedals.

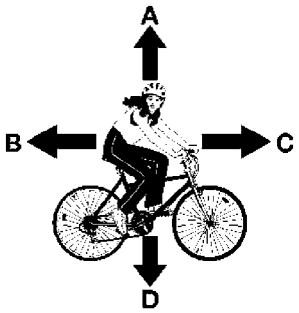


Figure 4-1A

____ 21. The diagram in Figure 4-1A is called a _____ diagram.
a. free-body
b. compression
c. tension
d. static

____ 22. In the diagram shown in Figure 4-1A, the arrow that best represents the **normal force** is:
a. A
b. B
c. C
d. D

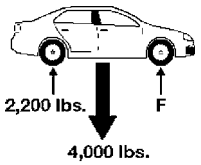
____ 23. In the diagram shown in Figure 4-1A, the arrow that best represents the **gravitational force** is:
a. A
b. B
c. C
d. D

____ 24. If the cyclist shown in shown in Figure 4-1A is accelerating forward, this means that:
a. Force B is greater than force C.
b. Force C is greater than force B.
c. Force A is greater than force D
d. All the forces are equal

____ 25. What is the net force on a 50-newton weight hanging on a string tied to the ceiling?
a. 0 N
b. 5 N
c. 50 N
d. 490 N

____ 26. If the net force acting on an object is zero, the speed of the object must:
a. increase.
b. decrease.
c. remain the same.
d. be zero.

____ 27. A 4,000-pound car is parked on a level street as shown in the diagram below:



If the rear of the car is supported by a normal force of 2,200 pounds, the normal force *F* supporting the front must be:

a. 1,800 N
b. 2,200 N
c. 2,800 N
d. 4,000 N

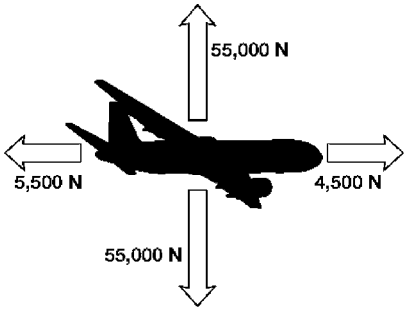
____ 28. When two or more forces act on an object, the sum of the forces can ALWAYS be called a(n):

a. balanced force.
b. unbalanced force.
c. net force.
d. friction force.

____ 29. A book exerts a force 2.0 newtons on a table as it lies on the table. The force exerted by the table on book is:

a. 0 N
b. 0.2 N
c. 2.0 N
d. 20 N

____ 30. Refer to the diagram below that shows 4 forces applied to an airplane.



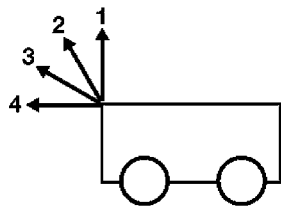
Due to the forces acting on the airplane, the airplane moves:

a. faster.
b. slower.
c. up.
d. down.

____ 31. The condition that exists for ALL bodies on which the net force is zero is:

a. weightlessness.
b. motion.
c. acceleration.
d. equilibrium.

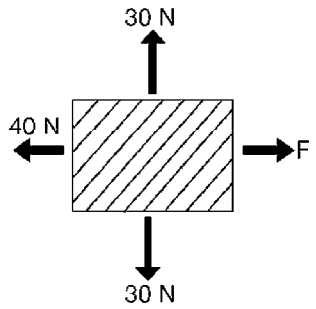
____ 32. The diagram below shows four net forces (1, 2, 3, and 4) that could be applied in different directions to a cart.



If each net force applied has the same size, the force that has the smallest effect on the cart in the vertical or *y*-direction is:

a. 1
b. 2
c. 3
d. 4

____ 33. 4 forces are acting on an object as shown in the diagram below:



If the object is moving with constant velocity, the size of force *F* must be:

a. 0 N
b. 30 N
c. 40 N
d. 100 N

____ 34. Rachael is pushing uphill with a force of +20 newtons on her bicycle that has a weight of -100 newtons. The bicycle pushes downhill on Rachael with a force of:

a. +20 N
b. -20 N
c. +100 N
d. 0 N

PSN Chapter 4 Multiple Choice Test
Answer Section

MULTIPLE CHOICE

1.	ANS: C	DIF:	basic	REF:	section 4.1	STA:	S8P3b
2.	ANS: A	DIF:	basic	REF:	section 4.1	STA:	S8P3b
3.	ANS: C	DIF:	basic	REF:	section 4.1	STA:	S8P3b
4.	ANS: B	DIF:	basic	REF:	section 4.1	STA:	S8P3b
5.	ANS: D	DIF:	basic	REF:	section 4.1	STA:	S8P3b
6.	ANS: B	DIF:	basic	REF:	section 4.1	STA:	S8CS5b
7.	ANS: D	DIF:	basic	REF:	section 4.1	STA:	S8CS5b
8.	ANS: D	DIF:	intermediate	REF:	section 4.1	STA:	S8CS5b
9.	ANS: C	DIF:	intermediate	REF:	section 4.1	STA:	S8P3b
10.	ANS: C	DIF:	intermediate	REF:	section 4.1	STA:	S8P3b
11.	ANS: C	DIF:	intermediate	REF:	section 4.1	STA:	S8CS3f
12.	ANS: B	DIF:	intermediate	REF:	section 4.1	STA:	S8P3b
13.	ANS: B	DIF:	advanced	REF:	section 4.1	STA:	S8CS3f
14.	ANS: A	DIF:	basic	REF:	section 4.2	STA:	S8P3b
15.	ANS: B	DIF:	basic	REF:	section 4.2	STA:	S8P3b
16.	ANS: C	DIF:	basic	REF:	section 4.2	STA:	S8P3b
17.	ANS: A	DIF:	intermediate	REF:	section 4.2	STA:	S8P3b
18.	ANS: C	DIF:	intermediate	REF:	section 4.2	STA:	S8P3b
19.	ANS: D	DIF:	intermediate	REF:	section 4.2	STA:	S8P3b
20.	ANS: C	DIF:	basic	REF:	section 4.3	STA:	S8P3b
21.	ANS: A	DIF:	basic	REF:	section 4.3	STA:	S8CS5b
22.	ANS: A	DIF:	intermediate	REF:	section 4.3	STA:	S8P3b
23.	ANS: D	DIF:	intermediate	REF:	section 4.3	STA:	S8P3b
24.	ANS: B	DIF:	intermediate	REF:	section 4.3	STA:	S8P3b
25.	ANS: A	DIF:	intermediate	REF:	section 4.3	STA:	S8P3b
26.	ANS: C	DIF:	intermediate	REF:	section 4.3	STA:	S8P3b
27.	ANS: A	DIF:	intermediate	REF:	section 4.3	STA:	S8P3b
28.	ANS: C	DIF:	intermediate	REF:	section 4.3	STA:	S8P3b
29.	ANS: C	DIF:	intermediate	REF:	section 4.3	STA:	S8P3b
30.	ANS: B	DIF:	intermediate	REF:	section 4.3	STA:	S8P3b
31.	ANS: D	DIF:	intermediate	REF:	section 4.3	STA:	S8P3b
32.	ANS: D	DIF:	advanced	REF:	section 4.3	STA:	S8P3b
33.	ANS: C	DIF:	advanced	REF:	section 4.3	STA:	S8P3b
34.	ANS: B	DIF:	advanced	REF:	section 4.3	STA:	S8P3b