Integrated Science 7th edition Tillery Test Bank

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Integrated Science, 7e **(Tillery)**
Chapter 2 Motion

1) Galileo reasoned that the distance a freely falling object travels is proportional to the square of the time.

Answer: TRUE
Section: 02.05
Topic: Falling Objects
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

2) If a 16 lb bowling ball and a 10 lb bowling ball are dropped from the 5th floor at the same time the heavier ball will reach the ground first.

Answer: FALSE
Section: 02.05
Topic: Falling Objects
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

3) When you roll a ball across the floor, it comes to a stop because you are no longer exerting a force on it.

Answer: FALSE
Section: 02.04
Topic: Motion
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

4) An object accelerates when its speed or direction changes.

Answer: TRUE
Section: 02.02
Topic: Motion
Bloom's: 2. Understand
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Chapter: 02

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5) A car traveling at 20 mph on a curved exit ramp has a constant velocity.

Answer: FALSE
Section: 02.02
Topic: Motion
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
Chapter: 02

6) Newton's 2nd law states that if a net force acts on an object, it will move at constant velocity.

Answer: FALSE
Section: 02.06
Topic: Newton's laws
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
Chapter: 02

7) For a constant mass the acceleration of an object is directly proportional to the applied force.

Answer: TRUE
Section: 02.07
Topic: Newton's laws
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
Chapter: 02

8) The football team wins a tug of war with the chess team because it pulls harder on the rope than the chess team does.

Answer: FALSE
Section: 02.06
Topic: Newton's laws
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
Chapter: 02

9) The momentum of an object remains the same unless an unbalanced force acts on it.

Answer: TRUE
Section: 02.08
Topic: Momentum
Bloom's: 3. Apply
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Chapter: 02

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10) A child on a carousel moving at constant speed has an acceleration of zero.

Answer: FALSE
Section: 02.02
Topic: Newton's laws
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
Chapter: 02

11) The speed calculated from the distance traveled during an entire trip and the elapsed time is a(an)
A) average speed.
B) instantaneous speed.
C) final speed.
D) constant speed.

Answer: A
Section: 02.02
Topic: Motion
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
Chapter: 02

12) Ignoring air resistance, the velocity of a falling object
A) is constant.
B) is constantly increasing.
C) increases for a while, then becomes constant.
D) depends on the mass of the object.

Answer: B
Section: 02.05
Topic: Falling Objects
Bloom's: 3. Apply
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13) The difference in speed and velocity is that a measure of velocity must include
A) a destination.
B) distance and time units.
C) direction.
D) time of departure.

Answer: C
Section: 02.02
Topic: Motion
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
Chapter: 02

14) The tendency of a moving object to remain in unchanging motion in the absence of an unbalanced force is called
A) inertia.
B) free fall.
C) acceleration.
D) impulse.

Answer: A
Section: 02.03
Topic: Newton's laws
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
Chapter: 02

15) Galileo discovered that an object in free fall (ignoring air resistance)
A) falls at constant velocity.
B) has a velocity proportional to its weight.
C) falls with increasing acceleration.
D) All of the choices are correct.

Answer: D
Section: 02.05
Topic: Falling Objects
Bloom's: 2. Understand
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Chapter: 02

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16) A cannonball is fired straight up at 50 m/s. Neglecting air resistance, when it returns to its starting point, its speed is
A) 50 m/s.
B) more than 50 m/s.
C) less than 50 m/s.
D) It depends on how long it is in the air.

Answer: A
Section: 02.05
Topic: Falling Objects
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

17) A heavy object and a light object are dropped from rest at the same time in a vacuum. The heavier object will reach the ground
A) before the lighter object.
B) at the same time as the lighter object.
C) after the lighter object.
D) It depends on the shape of the object.

Answer: B
Section: 02.05
Topic: Falling Objects
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

18) The newton is a unit of
A) motion.
B) energy.
C) power.
D) force.

Answer: D
Section: 02.07
Topic: Newton's laws
Bloom's: 4. Analyze
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Chapter: 02

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19) The pound is an English unit of measure; its SI counterpart is the
A) newton.
B) kilogram.
C) joule.
D) momentum.

Answer: A
Section: 02.07
Topic: Newton's laws
Bloom's: 3. Apply
Accessibility: Keyboard Navigation
Chapter: 02

20) If a net force applied to an object doubles, then its
A) velocity doubles.
B) acceleration doubles.
C) acceleration is cut in half.
D) acceleration increases by a factor of four.

Answer: B
Section: 02.07
Topic: Motion
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

21) A block of iron is transported to the moon. Which of the following is true?
A) Both the mass and weight remain unchanged.
B) The mass decreases, but the weight remains the same.
C) The mass remains the same, but the weight decreases.
D) Both the mass and weight decrease.

Answer: C
Section: 02.07
Topic: Motion
Bloom's: 4. Analyze
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22) A cannon ball and a bowling ball were dropped at the same time from the top of a building. At the instant before the balls hit the sidewalk, the cannon ball has greater
A) velocity.
B) acceleration.
C) momentum.
D) All of these are the same for the two balls.

Answer: C
Section: 02.08
Topic: Momentum
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

23) An object moves at a constant 5.0 m/s. One could correctly conclude that
A) no forces are acting on the object.
B) a constant force is applied to the object.
C) it was on a frictionless surface.
D) None of the choices are correct.

Answer: D
Section: 02.04
Topic: Motion
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

24) The product of the mass (m) and velocity (v) of an object is known as the
A) momentum.
B) inertia.
C) centripetal force.
D) acceleration.

Answer: A
Section: 02.08
Topic: Momentum
Bloom's: 2. Understand
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Chapter: 02

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25) From the equation $w = mg$, it is apparent that weight is equivalent to a(an)
A) force.
B) mass.
C) acceleration.
D) None of these.

Answer: A
Section: 02.06
Topic: Newton's laws
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

26) Which of the following is ***not*** a unit of speed?
A) km/h
B) ft/s
C) m/s
D) g/L

Answer: D
Section: 02.02
Topic: Motion
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

27) Which if the following is ***not*** a unit of acceleration?
A) km/h^2
B) m/s
C) km/h/s
D) m/s/s

Answer: B
Section: 02.02
Topic: Motion
Bloom's: 4. Analyze
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Chapter: 02

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28) An object is moving in a straight line at unchanging speed. This means that
A) all forces on the object are balanced.
B) there is an unbalanced force in the direction of motion.
C) the force of movement is greater than the friction force.
D) the force of movement is greater than the weight of the object.

Answer: A
Section: 02.02
Topic: Newton's laws
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

29) Ignoring air resistance, a falling object will have a speed of 9.8 m/s at the end of 1 s and will fall a distance of
A) 2.5 m.
B) 4.9 m.
C) 9.8 m.
D) 20 m.

Answer: B
Section: 02.02
Topic: Gravity and motion
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

30) Ignoring air resistance, a cannonball shot straight out from a mountain top with a speed of 8 km/s will
A) fall to Earth as a projectile.
B) stay the same distance above the surface.
C) gain altitude as it moves.
D) strike Earth in 9.8 seconds.

Answer: B
Section: 02.10
Topic: Newtons Law of Gravitation
Bloom's: 4. Analyze
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Chapter: 02

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31) An artificial satellite requires no engine because the satellite falls toward Earth as the surface
A) curves away from it continuously.
B) falls at the same rate as the satellite.
C) is attracted by the Moon.
D) pulls harder on the satellite.

Answer: A
Section: 02.10
Topic: Newtons Law of Gravitation
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

32) A straight-line distance covered during a certain amount of time describes an object's
A) speed.
B) velocity.
C) acceleration.
D) All of the choices are correct.

Answer: A
Section: 02.02
Topic: Motion
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
Chapter: 02

33) How fast an object is moving in a particular direction is described by
A) speed.
B) velocity.
C) acceleration.
D) All of the choices are correct.

Answer: B
Section: 02.02
Topic: Motion
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34) Acceleration occurs when an object undergoes
A) a speed increase.
B) a speed decrease.
C) a change in the direction of travel.
D) All of the choices are correct.

Answer: D
Section: 02.02
Topic: Motion
Bloom's: 2. Understand
Accessibility: Keyboard Navigation
Chapter: 02

35) A car moving at 60 mi/h comes to a stop in 10 s when the driver slams on the brakes. In this situation, what does 60 mi/h represent?
A) average speed
B) final speed
C) initial speed
D) constant speed

Answer: C
Section: 02.02
Topic: Motion
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

36) Is *any* change in the motion of an object an acceleration?
A) Yes.
B) No.
C) It depends on the type of change.

Answer: A
Section: 02.02
Topic: Motion
Bloom's: 4. Analyze
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37) A measure of how fast your speed is changing is a measure of
A) velocity.
B) average speed.
C) acceleration.
D) difference between initial and final speed.

Answer: C
Section: 02.02
Topic: Motion
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

38) Neglecting air resistance, a ball in freefall near Earth's surface will have
A) constant speed and constant acceleration.
B) increasing speed and increasing acceleration.
C) increasing speed and decreasing acceleration.
D) increasing speed and constant acceleration.

Answer: D
Section: 02.02
Topic: Gravity and motion
Bloom's: 4. Analyze
Accessibility: Keyboard Navigation
Chapter: 02

39) From a bridge a ball is thrown straight up at the same time a ball is thrown straight down with the same initial speed. Neglecting air resistance, which ball would have a greater speed when it hits the ground?
A) The one thrown straight up.
B) The one thrown straight down.
C) Both balls would have the same speed.

Answer: C
Section: 02.06
Topic: Gravity and motion
Bloom's: 4. Analyze
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40) After being released, a ball thrown straight down from a bridge would have an acceleration of
A) 9.8 m/s^2.
B) zero.
C) less than 9.8 m/s^2.
D) more than 9.8 m/s^2.

Answer: A
Section: 02.06
Topic: Gravity and motion
Bloom's: 4. Analyze
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Chapter: 02

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