

Chapter 3 practice

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) A mosquito flying at 3 m/s that encounters a breeze blowing at 3 m/s in the **same** direction has a speed of _____
A) 0 m/s. B) 3 m/s. C) 4 m/s. **D) 6 m/s.**
- 2) A mosquito flying at 3 m/s that encounters a breeze blowing at 3 m/s in the **opposite** direction has a speed of _____
A) 0 m/s. B) 3 m/s. C) 4 m/s. D) 6 m/s.
- 3) Katelyn runs along the aisle of a train that moves at 8 m/s. Her speed relative to the floor is 3 m/s. Her speed relative to an observer at rest on the ground is _____
A) 5 m/s.
B) 11 m/s.
C) either depending on her running direction
D) none of the above
- 4) When you walk at an average speed of 4 m/s, in 5 s you'll cover a distance of _____
A) 2 m. B) 10 m. C) 15 m. **D) 20 m.**
- 5) A vehicle undergoes **acceleration** when it _____
A) gains speed. B) loses speed.
C) changes its direction. **D) all of the above**
- 6) While a car travels around a circular track at a constant speed, its _____
A) acceleration is zero. B) velocity is zero.
C) inertia is zero. **D) none of the above**
- 7) If a car increases its velocity from zero to 60 m/s in 10 seconds, its acceleration is _____
A) 3 m/s². **B) 6 m/s².** C) 60 m/s². D) 600 m/s².
- 8) An object covers a distance of 8 meters in the first second of travel, another 8 meters during the next second, and 8 meters again during the third second. Its **acceleration** is _____
A) 0 m/s². B) 5 m/s². C) 8 m/s². D) 24 m/s².
- 9) If an object moves with constant acceleration, its velocity must _____
A) be constant also.
B) change by the same amount each second.
C) change by varying amounts depending on its speed.
D) always decrease.
- 10) A ball tossed vertically upward rises, reaches its highest point, and then falls back to its starting point. During this time the acceleration of the ball is always _____
A) in the direction of motion.
B) opposite its velocity.
C) directed upward.
D) directed downward.
E) none of the above

- 11) A car's speed 3 seconds after accelerating from rest at 2 m/s^2 is 11) _____
A) 2 m/s . B) 3 m/s . C) 4 m/s . D) 6 m/s .
- 12) The time it takes a car to attain a speed of 30 m/s when accelerating from rest at 2 m/s^2 is 12) _____
A) 2 s .
B) 15 s .
C) 30 s .
D) 60 s .
E) none of the above
- 13) The accelerations possible for a ball on an inclined plane 13) _____
A) range from zero to g .
B) range from g to infinity.
C) have no limit.
- 14) While an iron block near the Earth's surface is in free fall, it undergoes an increase in 14) _____
A) speed. B) acceleration.
C) both of these D) neither of these
- 15) An apple falls from a tree and hits the ground 5 meters below with a speed of about 15) _____
A) 5 m/s .
B) 10 m/s .
C) 15 m/s .
D) 20 m/s .
E) not enough information
- 16) An object at rest near the surface of a distant planet starts to fall freely. If the acceleration there is twice that of the Earth, its speed one second later would be 16) _____
A) 10 m/s . B) 20 m/s . C) 30 m/s . D) 40 m/s .
- 17) A ball is thrown upwards and returns to the same location. Compared with its initial speed its speed when it returns is about 17) _____
A) half as much. B) the same.
C) twice as much. D) four times as much.
- 18) At one instant an object in free fall is moving downward at 50 m/s . One second later its speed is 18) _____
A) 25 m/s . B) 50 m/s . C) 55 m/s . D) 60 m/s . E) 100 m/s .
- 19) If you throw a ball straight downward (in the absence of air resistance), after leaving your hand its acceleration is 19) _____
A) less than 10 m/s^2 . B) 10 m/s^2 . C) greater than 10 m/s^2 .
- 20) Neglecting air resistance, how fast must you toss a ball straight up in order for it to take 6 seconds to return to its initial level? 20) _____
A) 5 m/s
B) 10 m/s
C) 20 m/s
D) 30 m/s
E) more than 30 m/s

- 21) Neglecting air resistance, a ball projected straight upward so it remains in the air for 10 seconds needs an initial speed of 21) _____
A) 50 m/s. B) 60 m/s. C) 80 m/s. D) 100 m/s. E) 110 m/s.
- 22) A pot that falls from a ledge and hits the ground 45 m below hits the ground at 22) _____
A) 30 m/s. B) 60 m/s.
C) 120 m/s. D) more than 120 m/s.
- 23) Which of the following is **not** a vector quantity? 23) _____
A) velocity
B) speed
C) acceleration
D) all are vector quantities
E) none are vector quantities.
- 24) A humming bird flying at 4 km/h that gets caught in a 3-km/h crosswind has a resultant speed of about 24) _____
A) 3 km/h. B) 4 km/h.
C) 5 km/h. D) more than 5 km/h.
- 25) An 80-km/h airplane caught in a 60-km/h crosswind has a resultant speed of 25) _____
A) 60 km/h. B) 80 km/h. C) 100 km/h. D) 141 km/h.

Answer Key

Testname: CHAPTER 3 PRACTICE

- 1) D
- 2) A
- 3) C
- 4) D
- 5) D
- 6) D
- 7) B
- 8) A
- 9) B
- 10) D
- 11) D
- 12) B
- 13) A
- 14) A
- 15) B
- 16) B
- 17) B
- 18) D
- 19) B
- 20) D
- 21) A
- 22) A
- 23) B
- 24) C
- 25) C