1. A rock is thrown upward from the edge of a cliff that is 20 m high. The object rises 15 m and then falls to the ground. If the positive direction of the \( x \) is up, what is the rock's displacement?

   Answer: c. \(-20 \text{ m}\)

2. A car starts from rest and reaches a speed of 50 m/s in 10 s. What is its average acceleration?

   Answer: \(5 \text{ m/s}^2\)

3. An object, which is initially at rest, is moving with a constant acceleration of 2.90 m/s\(^2\) over a distance of 15.2 m. How long does it take for the object to move over this distance?

   Answer: 3.24 s

4. A car that is moving at a speed of 15 m/s is coming to a complete stop in 5.20 seconds. What is the acceleration of the car?

   Answer: b. \(-2.88 \text{ m/s}^2\)

5. Which of the following is NOT a vector?

   Answer: b. speed

6. An airplane is accelerating at a constant rate of 15 m/s\(^2\). How much time does it take for the airplane to increase its speed from 100 m/s to 160 m/s?

   Answer: 4.00 s

7. A ball is thrown straight up. At the highest point of its trajectory

   Answer: *b. its velocity is zero and its acceleration is not zero.

8. A 4.4 kg mass is falling starting from rest at a height of 22 m. How much time does it take for the mass to reach the ground? (use \( g = 9.8 \text{ m/s}^2 \))

   Answer: 2.1 s

9. An object is dropped from the edge of a cliff and is moving at 26.5 m/s just before it hits the ground. How high is the cliff? (use \( g = 9.81 \text{ m/s}^2 \))

   Answer: 35.8 m
10. An arrow is shot with an initial velocity of 60 m/s at an angle of 30° above the horizontal. What is the maximum height it will reach?

Answer: 46 m

11. A ball is dropped from a roof of a building and strikes the ground in 3 seconds. If a second ball is thrown horizontally from the roof, it will hit the ground in:

Answer: a. 3 s

12. A stone is thrown into the air so that the vertical component of the velocity is 20 m/s². It will hit the ground in _____. (use $g = 9.81 \text{ m/s}^2$)

Answer: 4.08 s

13. A bomber flying at a constant velocity in level flight releases its bomb and hits a target on the ground. Neglecting air resistance, which one of the following is NOT true?

Answer: a. The bomber must be over the target when the bomb is released

14. Mike is serving the volleyball for the second time in a volleyball game. If the ball leaves his hand with twice the velocity it had on the first serve, its horizontal range R would be:

Answer: *d. four times as much