Sample Quiz: Equations of Motion

1. Two objects, X and Y, accelerate from rest with the same constant acceleration. Object X accelerates for twice the time as object Y. Which of the following is true of these objects at the end of their respective periods of acceleration?

    a) Object X is moving at the same speed as object Y
    b) Object X is moving four times faster than object Y
    c) Object X has traveled the same distance as object Y
    d) Object X has traveled twice as far as object Y
    e) Object X has traveled four times as far as object Y

2. Two objects, X and Y, accelerate from rest for the same time. Object X has twice the acceleration as object Y. Which of the following is true of these objects at the end of their respective periods of acceleration?

    a) Object X is moving at the same speed as object Y
    b) Object X is moving four times faster than object Y
    c) Object X has traveled the same distance as object Y
    d) Object X has traveled twice as far as object Y
    e) Object X has traveled four times as far as object Y

3. You throw a ball straight up with an initial speed of 40 m/s, how long is it in the air, ignoring friction?

    a) 2 s
    b) 4 s
    c) 8 s
    d) 16 s
    e) 32 s

4. A ball is thrown in the air with an initial velocity of 10 m/s. What is its acceleration?

    a) 10 m/s^2 when going up and -10 m/s^2 when falling down
    b) -10 m/s^2 when going up and 10 m/s^2 when falling down
    c) 0 m/s^2 at the maximum height
    d) 10 m/s^2 always
    e) -10 m/s^2 always

5. A ball is thrown straight up in the air with an initial velocity of 10 m/s. What is its velocity?

    a) 10 m/s when going up and -10 m/s when falling down
    b) -10 m/s when going up and 10 m/s when falling down
    c) 0 m/s at the maximum height
    d) 10 m/s always
    e) – 10 m/s always

6. You drop a ball from a height h, how long does it take to fall to the ground?

    a) h/g
    b) $2h/g$
    c) $h/(2g)$
    d) $\sqrt{2h/g}$
    e) $\sqrt{h/g}$

7. A car driving at 80 m/s applies the brakes and skids to rest in 4 seconds. How far did it travel during braking?

    a) 20 m
    b) 40 m
    c) 80 m
    d) 160 m
    e) 320 m

Answers:
1. e
2. d
3. c
4. e
5. c
6. d
7. d