

I changed all my passwords to "incorrect".

A meme featuring Steve Carell as Michael Scott from the TV show 'The Office'. He is wearing his signature glasses, a brown suit, a light blue shirt, and a red patterned tie. He is smiling broadly and holding a banana. The background is a wooden chair.

**So whenever I forget, it will
tell me "Your password is incorrect."**

HONORS FIZZIX POP Q1

BL7

© D Taylor 2015

**ONE CRIES BECAUSE ONE IS
SAD.**



**FOR EXAMPLE, I CRY BECAUSE OTHERS
ARE STUPID, AND THAT MAKES ME SAD.**

HONORS FIZZIX - POP QUIZ #1 BL7 2015

Work with A (ONE, UNO, SINGLE) Human. EACH of you must submit your own solutions. Use $g=10$ m/s² for math-based Q's.

Notes are allowed, but NO INTERWEBS!

* Required

1. Which one of the following situations is not possible?

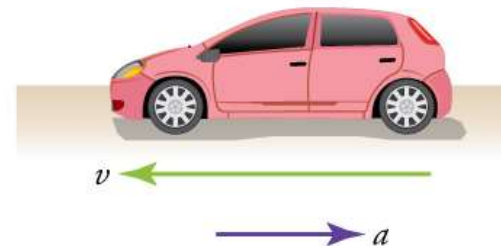
- A) A body has zero velocity and no acceleration.
- B) A body travels with a northward velocity and a northward acceleration.
- C) A body travels with a northward velocity and a southward acceleration.
- D) A body travels with a constant velocity and a time-varying acceleration.
- E) A body travels with a constant acceleration and a time-varying velocity.

CONSTANT velocity means $a = 0$

2. In which one of the following situations does the car have a eastward acceleration?

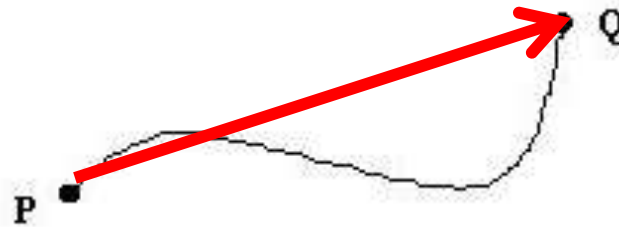
- A) The car travels eastward and slows down.
- B) The car starts from rest and moves toward the west.
- C) The car travels westward at constant speed.
- D) The car travels westward and slows down.
- E) The car travels westward and speeds up.

(c)



3. A particle travels along a curved path between two points P and Q as shown below. The displacement of the particle does not depend on

- A) the distance traveled from P to Q.
- B) the location of Q.
- C) the location of P.
- D) the shortest distance between P and Q.
- E) the direction of Q from P.



4. A ball is shot straight up from the surface of the earth with an initial speed of 40 m/s. Neglect any effects due to air resistance. How much time elapses between the throwing of the ball and its return to the original launch point?

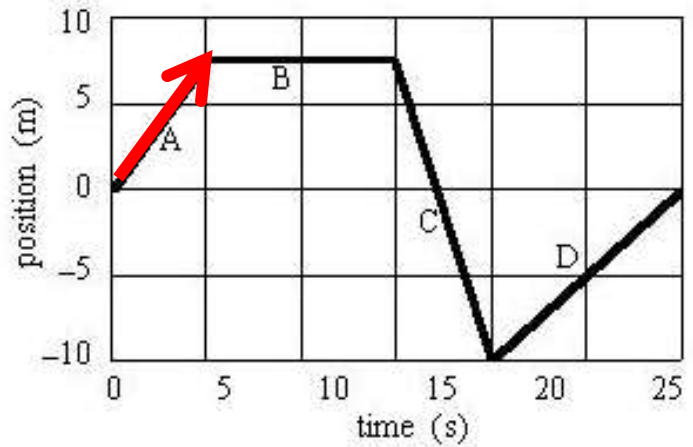
- A) 2 sec
- B) 4 sec
- C) 8 sec
- D) 12 sec
- E) 16 sec

$$t = \frac{v_f - v_o}{a} = \frac{-40 - 40}{-10}$$

CONCEPT: 4 sec up, 4 sec down...

5. An object is moving along a straight line in the positive x direction. The graph shows its position from the starting point as a function of time. Various segments of the graph are identified by the letters A, B, C, and D. Which segment(s) of the graph represent(s) a constant velocity of +1.5 m/s?

- A) A
- B) B
- C) C
- D) D
- E) E



6. A car starts from rest and accelerates at a constant rate in a straight line. In the first second the car covers a distance of 4.0 meters. How fast will the car be moving at the end of the second second?

- A) 2.0 m/s
- B) 4 m/s
- C) 8 m/s
- D) 16 m/s
- E) 32 m/s

$$v_f = v_i + at = 0 + 8(2)$$

WHY is $a = 8$?

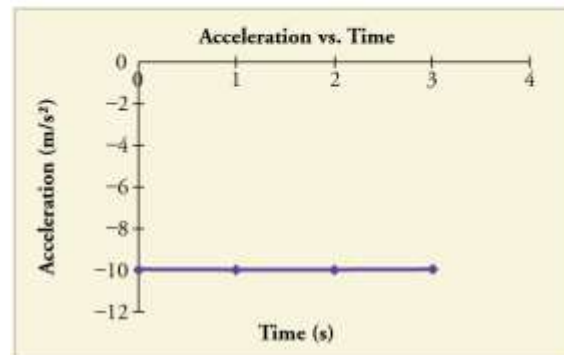
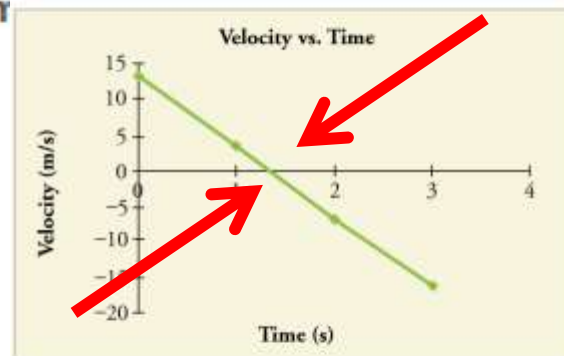
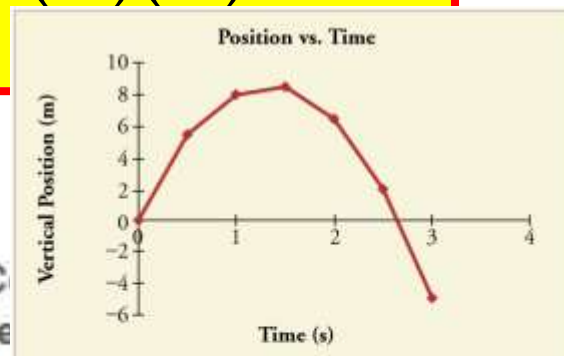
7. A car starts from rest and accelerates at a constant rate in a straight line. In the first second the car covers a distance of 2.0 meters. How much additional distance will the car cover during the second second of its motion?

- A) 2 m
- B) 4 m
- C) 6 m
- D) 8 m
- E) 12 m

$$d = \frac{1}{2} at^2 = \frac{1}{2} (4)(2)^2 = 8$$

8. A ball is thrown vertically upward from the surface of the earth. Consider the following quantities: (1) the speed of the ball (2) the velocity of the ball (3) the acceleration of the ball. Which of these is (are) zero when the ball has reached the maximum height?

- A) 1 only
- B) 2 only
- C) 1 & 2
- D) 1 & 3
- E) 1, 2, & 3



9. The slope of a velocity-time graph represents

- A) distance traveled
- B) Initial velocity
- C) final velocity
- D) average velocity
- E) acceleration

$$m = \frac{\Delta y}{\Delta x} = \frac{\Delta v}{t} = a$$

10. The slope of a displacement-time graph represents

- A) distance traveled
- B) Initial velocity
- C) final velocity
- D) average velocity
- E) acceleration

$$m = \frac{\Delta y}{\Delta x} = \frac{d}{t} = v$$