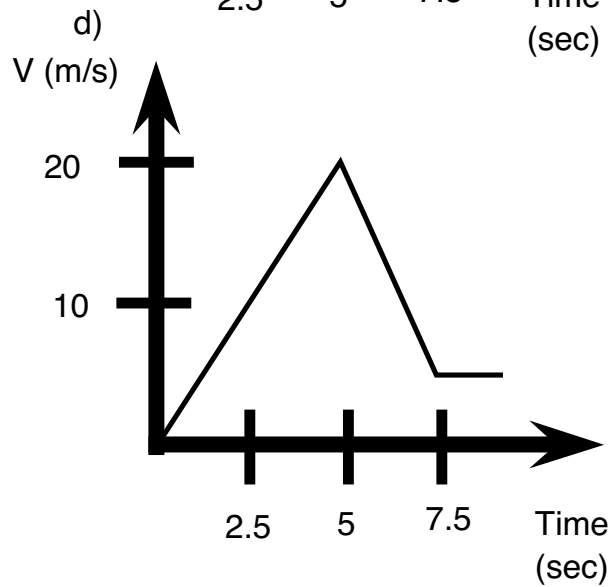
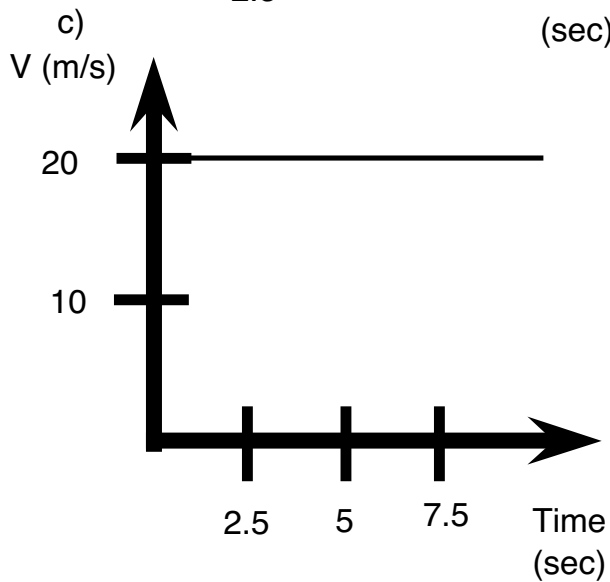
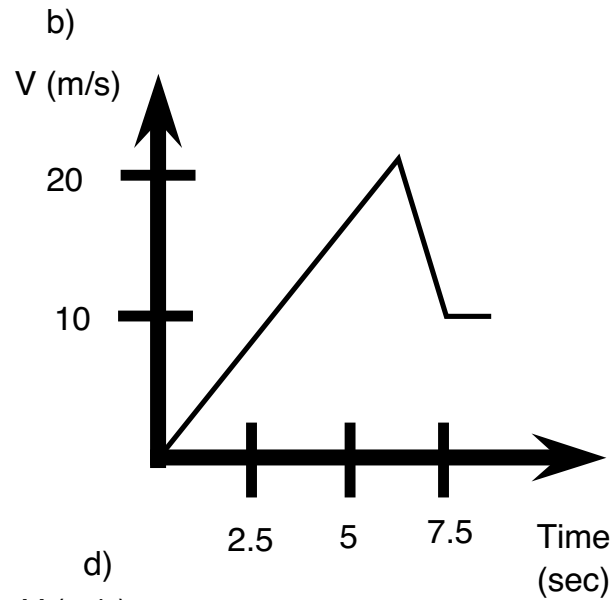
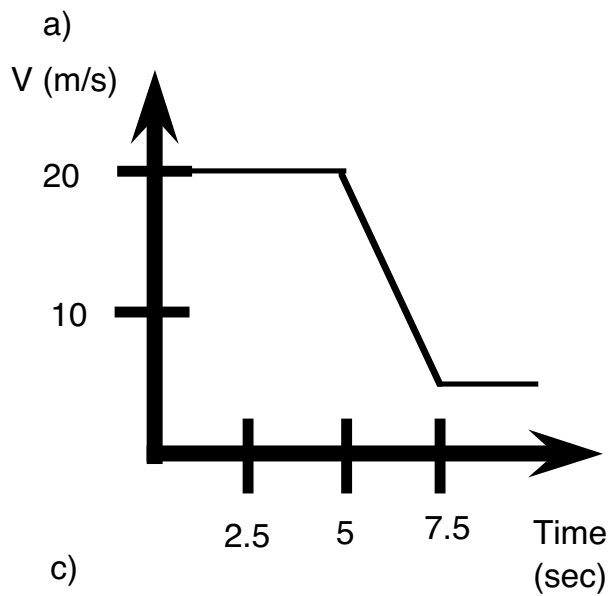


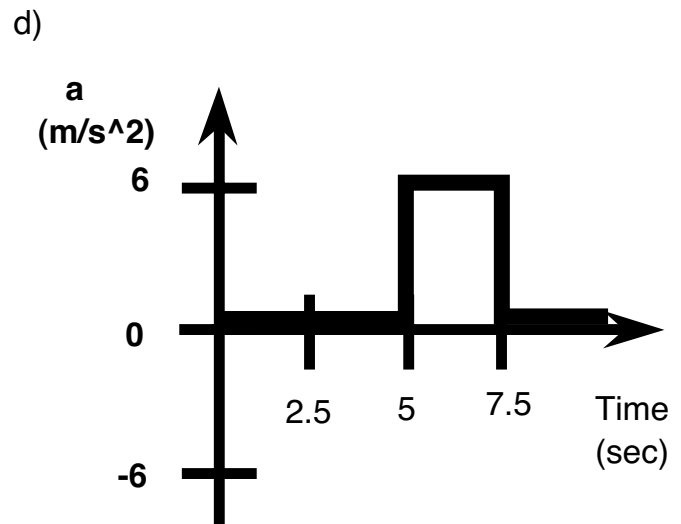
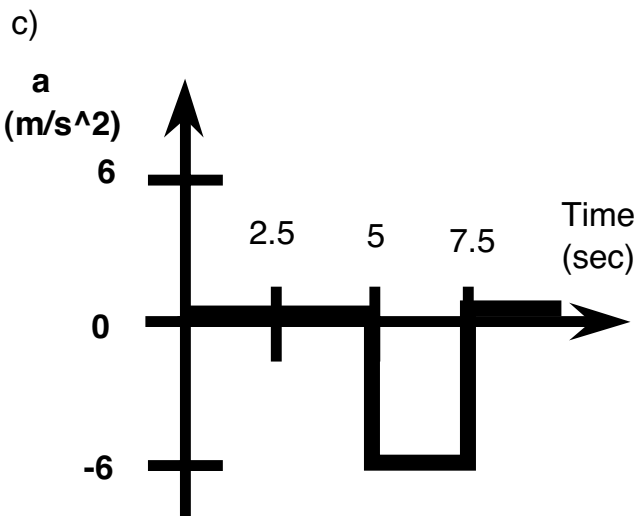
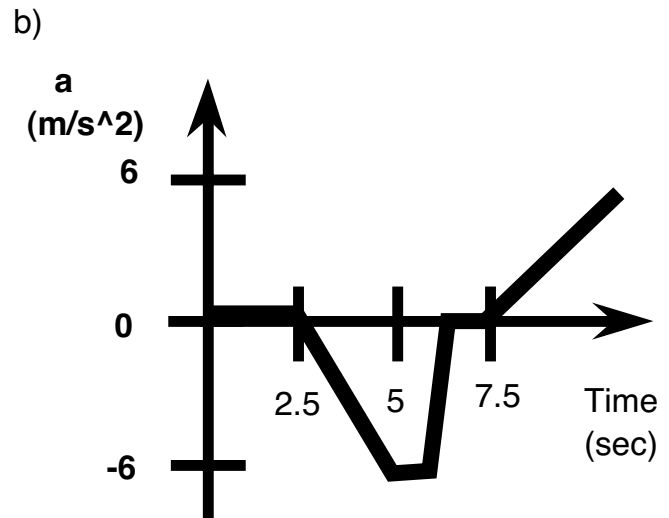
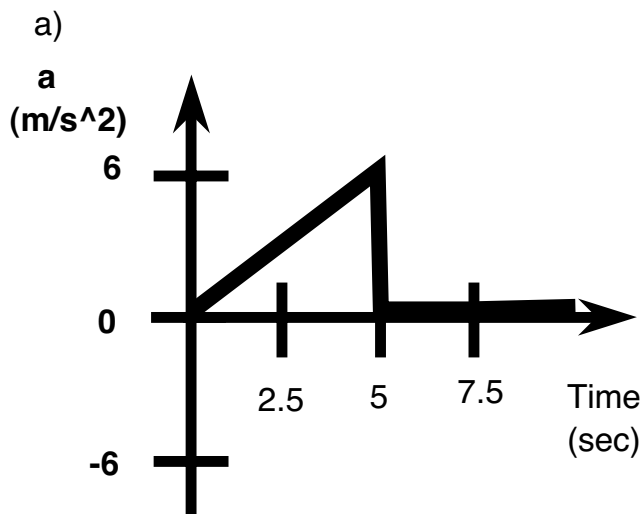
In the next 2 questions, choose the best graphs below for the situation in which a car travels at 20 m/s for 5 seconds and reduces its speed over 2.5 seconds to 5 m/s and continues at this speed.

1.) Find the correct speed versus time graph or choose 'e'.



e) None of the above graphs accurately reflect the events.

2.) Find the correct acceleration versus time graph or choose 'e'.



e) None of the above graphs accurately reflect the events.

3.) If a cheetah can run at 60 miles/hour for $1/3$ hour and a gazelle can run at 40 miles/hour for 1 hour, how do the distances they cover compare?

- a) The cheetah covers twice as much distance as the gazelle.
- b) The cheetah covers $1/3$ as much distance as the gazelle.
- c) The gazelle covers two times as much distance as the cheetah.
- d) The gazelle covers the same distance as the cheetah.
- e) The cheetah covers 3 times as much distance as the gazelle.

4.) A pilot flying a Cessna airplane buzzes a neighbor's farm. While flying over her coffee mug falls out of the plane, how far off the ground is the plane if her mug lands in the field in 8 seconds?

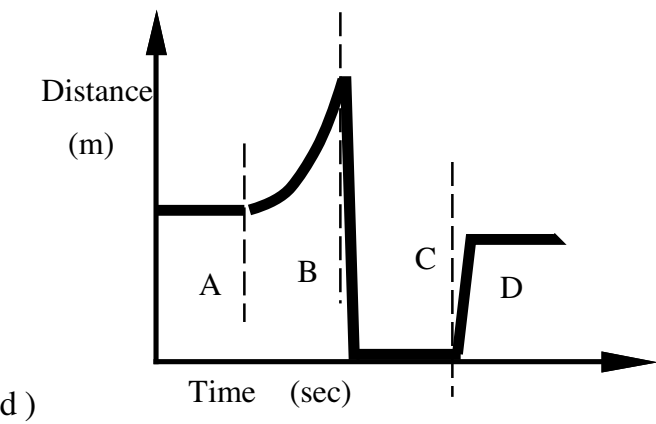
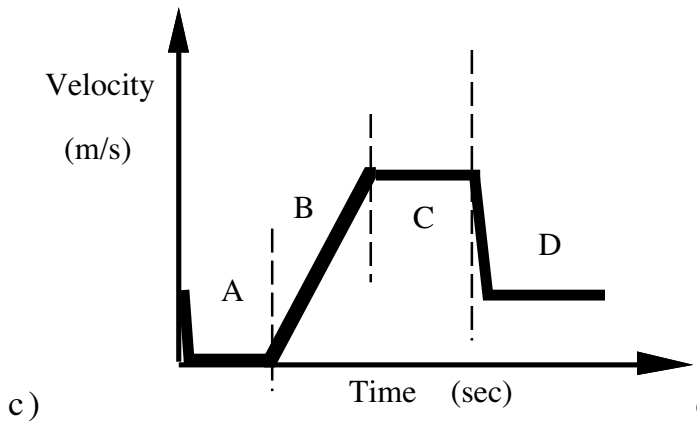
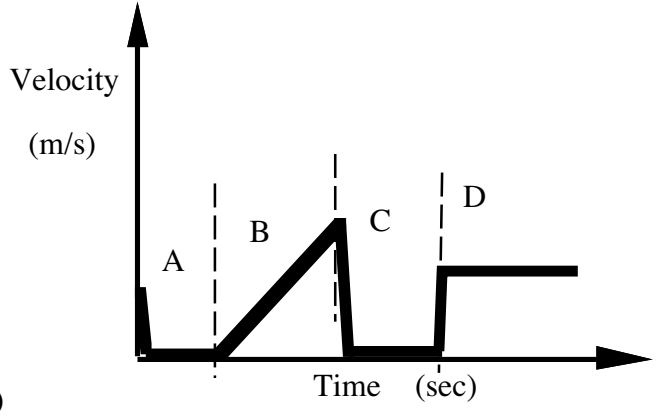
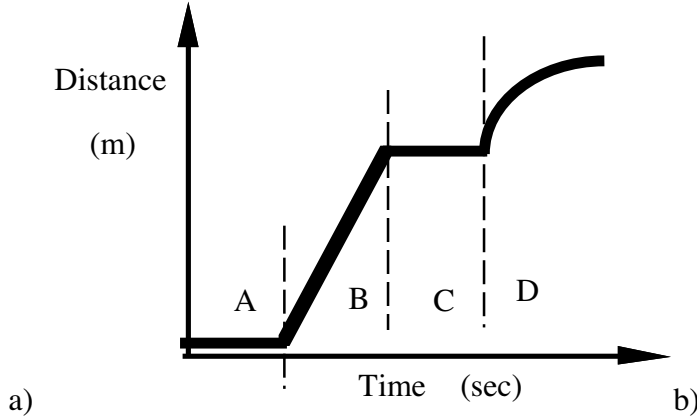
- a) 156.8 meters
- b) 78.4 meters
- c) 313.6 meters
- d) 39.2 meters
- e) 627.2 meters

5.) If a little girl going 0.5 m/s realizes that she can pass her little sister and get to the cookie plate first by running (at 1.2 m/s) instead of walking, what must her acceleration be in the next 2 seconds to reach that goal?

- a) 0.15 m/s²
- b) 0.7 m/s²
- c) 0.071 m/s²

- d) 0.6 m/s²
- e) 0.35 m/s²

6.) Choose the graph which BEST describes the motion of the following example. A young child is playing in the back yard. A. She stops as she catches sight of a beautiful flower! B. The child runs across the yard picking up speed until she reaches the flower where (C.) She stops to snatch up the bright, yellow dandelion. D. The child then runs steadily towards her mother with the flower.



e) None of the above graphs describe the motion as stated in the question.

7.) If the space shuttle accelerates at 15 m/s² as it launches, what is its velocity 2 minutes (120 seconds) after take off?

- a. 180 m/s up
- b. 15 m/s downward
- c. 1800 m/s upward
- d. 900 m/s upward
- e. 15m/s² downward

8.) In order to be able to jump over a fence, the horse with rider (500 kg) must push down on the earth with a force of _____ so that the earth can push back with a reaction force that allows the jumpers to be airborne.

- a) 500 kg
- b) less than 4900 N
- c) more than 500 kg
- d) 4900 N
- e) more than 4900 N

9.) According to Newton's First Law of Motion, _____

- a. if you experience any net force you will start moving in a circle.
- b. if you experience a net force in the same direction as you are moving you will slow down.
- c. if you are moving in a circle, you can not move at a constant speed.
- d. if you change the direction of your motion you must be experiencing a net force.
- e. if you accelerate you have no net force acting upon you.

10.) If I hold a racquetball in my hand that weighs 9.8 N, what is the force acting on it when I release it (before hitting it with the racquet)?

- a) 9.8 m/s^2
- b) 1 N
- c) 1 kg
- d) 9.8 N
- e) 96 N