

**Motion in One Dimension (1D)**

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**EUEE 2014/2015(2022)**

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1. For an object moving in straight line,
    - A. If the velocity increases by equal amount in equal time interval, the velocity-time graph is straight line with positive slope and the acceleration-time graph is horizontal.
    - B. The slope displacement-time graph and the area of the region under the acceleration-time graph are, respectively, the acceleration and velocity of the object.
    - C. If the displacement changes by equal amount in equal time interval, the displacement-time graph is horizontal line.
    - D. The area of the region under the displacement-time graph and the slope of velocity-time graph are, respectively, the acceleration and displacement of the object.
  2. A student throws a ball vertically upward with a speed of 20 m/s. The maximum height reached by the ball and its velocity 3.0 s after it was thrown are, respectively:
    - A. 20 m and 10 m/s downward.
    - B. 20 m and 30 m/s upward.
    - C. 15 m and 10 m/s downward.
    - D. 105 m and 50 m/s upward.
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**EUEE 2013/2014(2021)**

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1. A car is traveling at constant velocity along a straight line. Which, statement is correct?
    - A. The displacement of the car is in opposite direction.
    - B. The displacement of the car increases linearly with time.
    - C. The acceleration of the car is in the opposite direction.
    - D. The net force on the car is different from zero.
  2. Instantaneous velocity is different from the average velocity in that; instantaneous velocity is:
    - A. In opposite direction to the displacement of the moving object.
    - B. the velocity at a particular instant of time.
    - C. the average velocity during the time of acceleration.
    - D. the total displacement to the time taken.
  3. A car traveling at 20 m/s starts to speed up. After 5 minutes its speed is 144 m/s. What is the acceleration of the car?
    - A.  $0.41 \text{ m/s}^2$
    - B.  $28.8 \text{ m/s}^2$
    - C.  $0.55 \text{ m/s}^2$
    - D.  $24.8 \text{ m/s}^2$
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**EUEE 2012/2013(2020/21)**

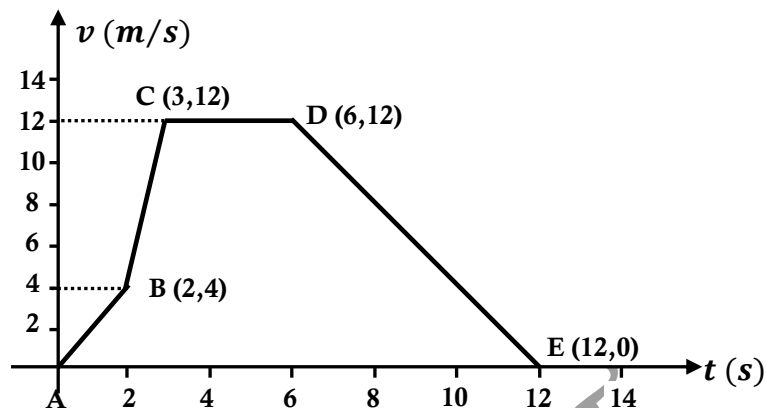
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1. While going to school, a student travels 3 km, East and then 4 km, North in 2 hrs. The magnitude of student's average velocity and average speed are, respectively:
    - A. 2.5 km/hr and 3.5 km/hr
    - B. 2 km/hr and 7 km/hr
    - C. 5 km/hr and 7 km/hr
    - D. 3.5 km/hr and 2.5 km/hr
  2. A boy throws a ball vertically upward with an initial speed of 20 m/s. Neglecting air resistance, which of the following is true about the motion of the ball?
    - A. The time taken to reach the maximum height is 4s.
    - B. Its velocity after 3s is 50 m/s, downward.
    - C. Its maximum height is 20 m.
    - D. Its velocity after 1s is 30 m/s, upward.
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**Motion in One Dimension (1D)**

**EUEE 2011(2019)**

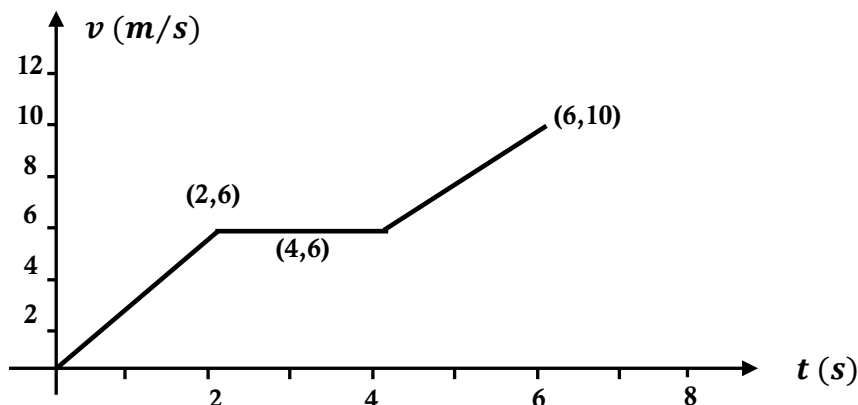
1. A driver of an automobile traveling at constant speed of 20 m/s suddenly applies a break and the automobile comes to rest in 2.0 seconds after skidding for a certain distance. What is the length of the skid distance?  
A. 400 m                      B. 10 m                      C. 40 m                      D. 20 m
2. Which one of the following is correct about the motion shown in the velocity-time graph below?



- A. Between C and D, the motion is with constant acceleration.
- B. Between B and C, the acceleration is  $4 \text{ m/s}^2$ .
- C. Between D and E, the motion is with constant positive acceleration.
- D. The total displacement is 84m.

**EUEE 2010(2018)**

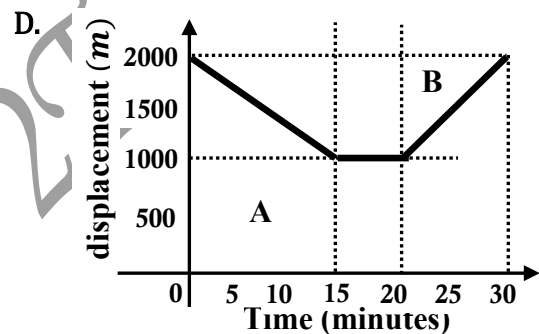
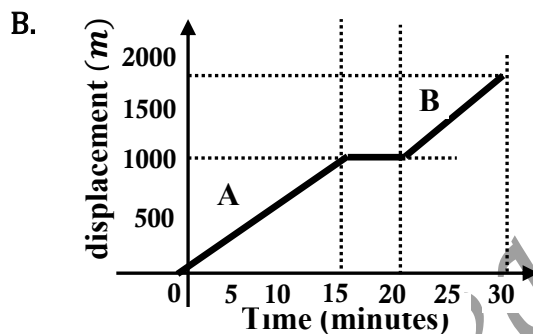
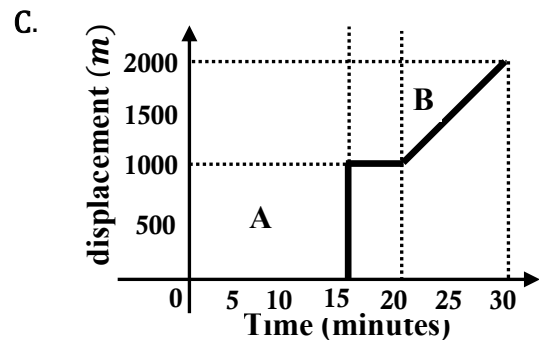
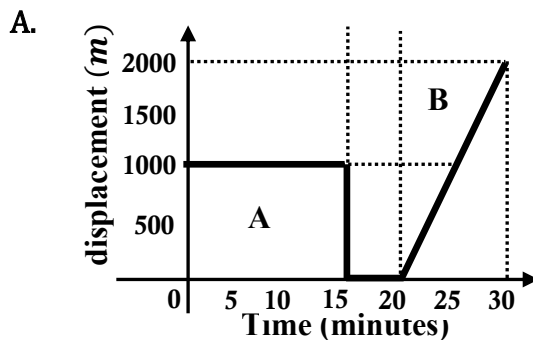
1. A race car is moving at constant speed of 35 m/s. A security car was moving at a speed of 5 m/s as the car passes by it and was accelerating at constant rate of  $5 \text{ m/s}^2$ . What was the speed of the security car when it took over the race car?  
A. 35 m/s                      B. 60 m/s                      C. 65 m/s                      D. 5 m/s
2. A car is moving from rest and its motion on the straight line is shown in the figure below. What is the average velocity of the car within the first 6 seconds?



**Motion in One Dimension (1D)**

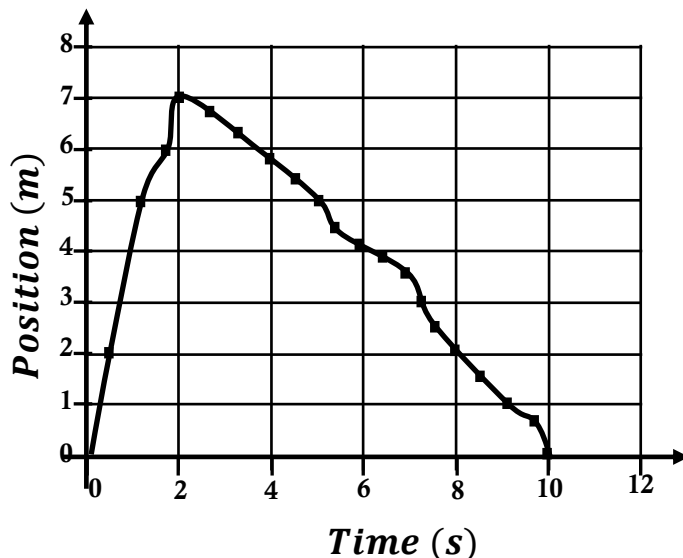
**EUEE 2009(2017)**

1. A cricketer throws a ball vertically upwards with initial speed of 20 m/s. how long is it in the air before it returns to the cricketer's hands?  
A. 2 s                      B. 10 s                      C. 1.5 s                      D. 4 s
2. Abeba walks to school. She walks 1 km in 15 minutes. She meets her friend Makeda- they talk for 5 minutes and then carry-on walking to school. They walk 1800 m 10 minutes. Which of the following displacement-time graph shows Abeba's journey to school?



**EUEE 2008(2016)**

1. The graph below illustrates the position and time for a cat that runs to catch a rat and then returns with it. The cat caught the rat after 2 seconds. What was the cat's average speed at it returned with the rat?



- A. Its average return speed was 2 m/s.
- B. Its average return speed was 4 m/s.
- C. Its average return speed was 0.7 m/s.
- D. Its average return speed was 0.9 m/s.

**Motion in One Dimension (1D)**

2. An airplane travelled from Addis Ababa to Mekelle, 780 km, in 45 minutes. What was its average speed?  
A. 0.28 m/sec                      B. 1040 km/hr                      C. 17.3 m/min                      D. 585 km/hr
3. An example of a body moving with constant speed but still accelerating is:  
A. A body moving on a straight road.  
B. A body moving on a straight railway track.  
C. A body moving in a circular path.  
D. A body falling in a viscous fluid.

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**EUEE 2007(2015)**

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1. Which one of the following statements is correct?  
A. An object moving toward the east cannot have an acceleration toward the west.  
B. If the average velocity of an object is zero in some time interval, the average speed of the object for that time interval is also zero.  
C. The velocity-time graph of an object moving with constant acceleration is parallel to the time axis.  
D. An object having zero velocity can have acceleration different from zero.
2. A car traveling along a straight line at constant speed of 20 m/s for a distance **d** and then another distance **d** in the same direction at constant speed of 36 km/hr. what is the average speed for the entire trip?  
A. 23 km/h                      B. 48 km/h                      C. 54 km/h                      D. 60 km/h

| Year                 | Answers |      |      |
|----------------------|---------|------|------|
| EUEE 2007(2015)      | 1. C    | 2. B |      |
| EUEE 2008(2016)      | 1. D    | 2. B | 3. C |
| EUEE 2009(2017)      | 1. D    | 2. B |      |
| EUEE 2010(2018)      | 1. B    | 2. B |      |
| EUEE 2011(2019)      | 1. D    | 2. B |      |
| EUEE 2012/2013(2020) | 1. D    | 2. C |      |
| EUEE 2013/2014(2021) | 1. B    | 2. B | 3. A |
| EUEE 2014/2015(2022) | 1. C    | 2. C |      |