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Solution 62

- (i) OA represents uniform acceleration
- (ii) AB represents constant speed.
- (iii) BC represents uniform retardation.
- (iv) Acceleration of car from O to A = slope of line OA
- (v) Acceleration of car from A to B is zero as it has uniform speed during this time.
- (vi) Retardation of car from B to C = slope of line BC
- (i) OA represents uniform acceleration
- (ii) AB represents constant speed.
- (iii) BC represents uniform retardation.
- (iv) Acceleration of car from O to A = slope of line OA

$$a = \frac{40 - 0}{10 - 0} = 4 \,\text{m/s}^2$$

(v) Acceleration of car from A to B is zero as it has uniform speed during this time.

(vi) Retardation of car from B to C = slope of line BC

$$a = \frac{0-40}{50-30} = \frac{-40}{20} = -2 \,\text{m/s}^2$$

Solution 63

- (i) Graph (a) represents uniform acceleration.
- (ii) Graph (b) represents constant speed.
- (iii) Graph (c) represents uniform retardation.
- (iv) Graph (d) represents non-uniform retardation.

Solution 64

Initial velocity, u=8m/s

Acceleration, a=1m/s<sup>2</sup>

Distance, s=18m

Initial velocity, u=8m/s

Acceleration, a=1m/s<sup>2</sup>

Distance, s=18m

using relation, 
$$v^2 = u^2 + 2as$$
  
 $v^2 = (8)^2 + 2 \times 1 \times 18$   
 $v^2 = 64 + 36 = 100$   
 $v = \sqrt{100} = 10 \text{m/s}$ 

Solution 65 Initial velocity, u=20m/s Final velocity, v=0m/s Distance, s=50m

Initial velocity, u=20m/s  
Final velocity, v=0m/s  
Distance, s=50m  
using relation, 
$$v^2 = u^2 + 2as$$
  
 $0^2 = (20)^2 + 2 \times a \times 50$   
 $0^2 = 400 + 100a$   
 $-400 = 100 a$   
 $a = \frac{-400}{100} = -4m / s^2$ 

The car's deceleration must be  $4 \text{ m/s}^2$ .

The car's deceleration must be  $4 \text{ m/s}^2$ .

\*\*\*\*\*\*\* END \*\*\*\*\*\*\*