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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

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

(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

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

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^2
Distance, s=18m

Initial velocity, u=8m/s
Acceleration, a=1m/s^2
Distance, s=18m
using relation, $v^2 = u^2 + 2as$

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

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, $v^2 = u^2 + 2as$

$$0^2 = (20)^2 + 2 \times a \times 50$$

$$0^2 = 400 + 100a$$

$$-400 = 100\,a$$

$$a = \frac{-400}{100} = -4 m/s^2$$

The car's deceleration must be 4 m/s^2.

The car's deceleration must be 4 m/s^2.

********** END **********