

(EPC03-0001H)

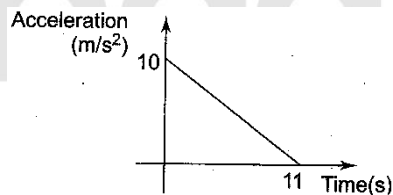
- A car moving on a straight road covers one third of the distance with 20 km/h and the rest with 60 km/h. The average speed is
 - 40 km/h
 - 80 km/h
 - $46\frac{2}{3}$ km/h
 - 36 km/h

(EPC03-0002E)

- If the displacement of a particle is directly proportional to the square of time. Then particle is moving with
 - Uniform acceleration
 - Variable acceleration
 - Uniform velocity
 - Variable acceleration but uniform velocity

(EPC03-0003E)

- A particle starts from rest. Its acceleration (a) versus time (t) is as shown in Figure. The maximum speed of the particle will be:



- 110 m/s
- 55 m/s
- 550 m/s
- 660 m/s

(EPC03-0004E)

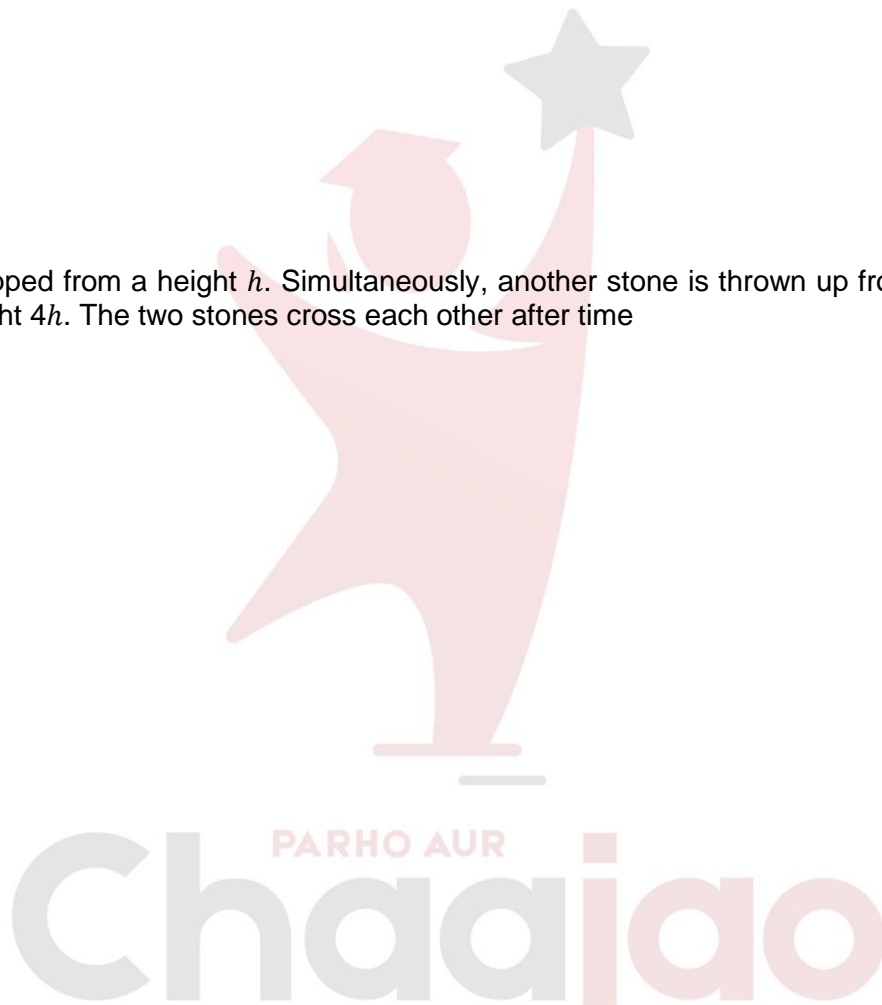
- When two bodies move towards each other with constant speeds, the distance between them decreases at the rate of 6 m/s. If they move in the same direction with the same speeds, the distance between them increases at the rate of 4 m/s. Then their speeds are
 - 5 m/s and 1 m/s
 - 3 m/s and 3 m/s
 - 4 m/s and 2 m/s
 - none of the above

(EPC03-0005M)

- A stone is dropped from a height h . Simultaneously, another stone is thrown up from the ground which reaches a height $4h$. The two stones cross each other after time
 - $\sqrt{\frac{h}{2g}}$
 - $\sqrt{\frac{h}{8g}}$
 - $\sqrt{8hg}$
 - $\sqrt{2hg}$

(EPC03-0006M)

- The speed with which a ball should be thrown down, so that it bounces 10 m higher than its original level, assuming no energy loss in striking the ground, is
 - 10 m/s
 - 14 m/s
 - 20 m/s
 - None of the above



(EPC03-0008E)

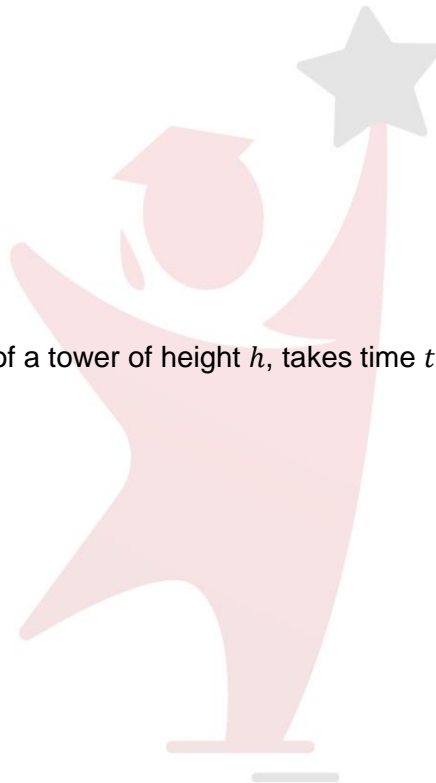
- A stone, thrown vertically upwards from the top of a tower with an initial velocity u , reaches the ground with a velocity $3u$. The height of the tower is
 - $\frac{3u^2}{g}$
 - $\frac{4u^2}{g}$
 - $\frac{6u^2}{g}$
 - $\frac{9u^2}{g}$

(EPC03-0010E)

- A body, released from the top of a tower of height h , takes time t to reach the ground. At time $t/2$ its height from the ground was
 - $h/4$
 - $h/3$
 - $h/2$
 - $3h/4$

(EPC03-0011H)

- A ball is dropped from a great height. One second later, another ball is dropped from the same height. The distance between them 3 s after the first ball is dropped is ($g = 10 \text{ m/s}^2$)
 - 25 m
 - 20 m
 - 50 m
 - 10 m



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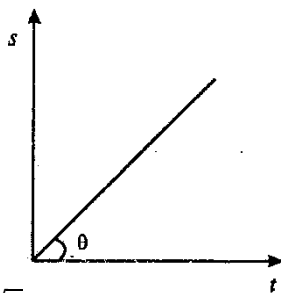
(EPC03-0012E)

- A car travels for a certain time. Its speed during the first half time is v_1 and that during the second half time is v_2 . Find the average speed.

- A) $v_1 + v_2$
- B) $\frac{v_1 + v_2}{2}$
- C) $\frac{v_1 + v_2}{v_1 + v_2}$
- D) $\frac{2v_1v_2}{v_1 + v_2}$

(EPC03-0013E)

- The displacement-time graphs for two particles A and B are straight lines inclined at 60° and 30° to the time axis. Find the ratio of their speeds.

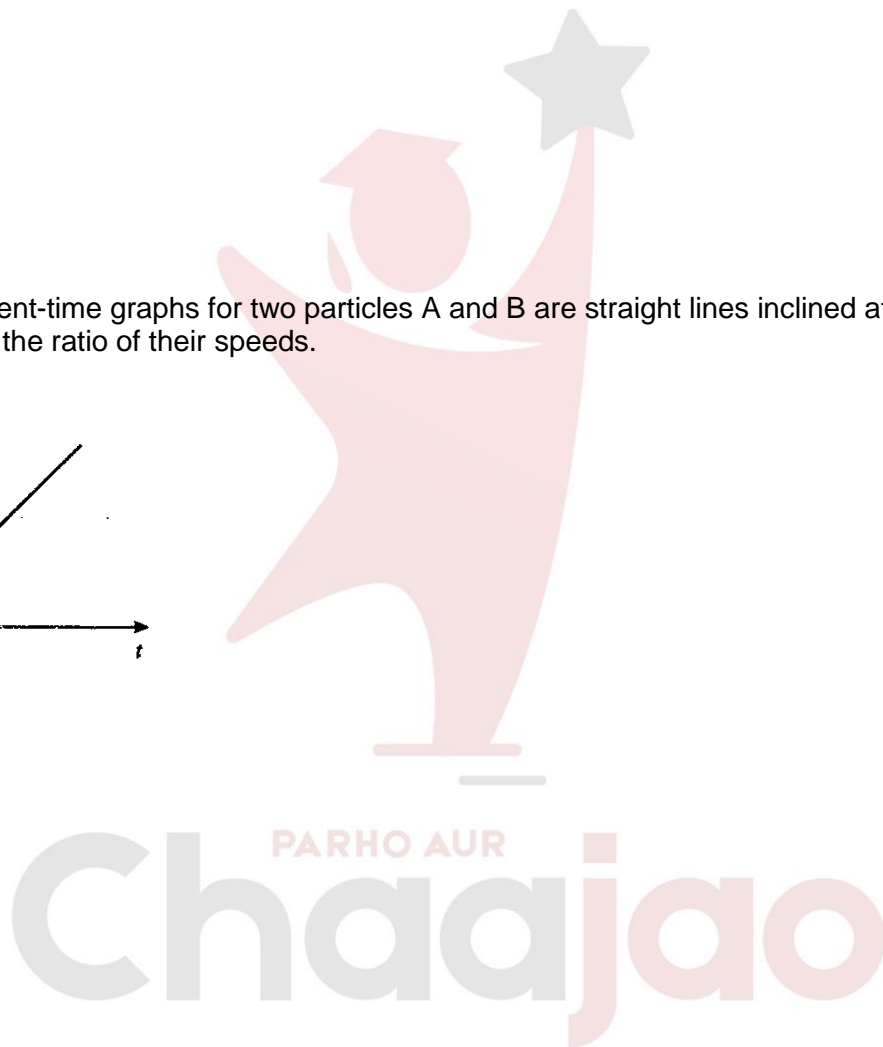


- A) $\sqrt{3}$
- B) 3
- C) $\frac{1}{\sqrt{3}}$
- D) $3 + \sqrt{3}$

(EPC03-0015E)

- A ball is projected vertically upwards from the ground with a velocity of 20 m/s. How long will it take to reach the highest point? (Take $g = 10 \text{ m/s}^2$)

- A) 1 s
- B) 3 s
- C) 2 s
- D) 4 s



(EPC03-0016M)

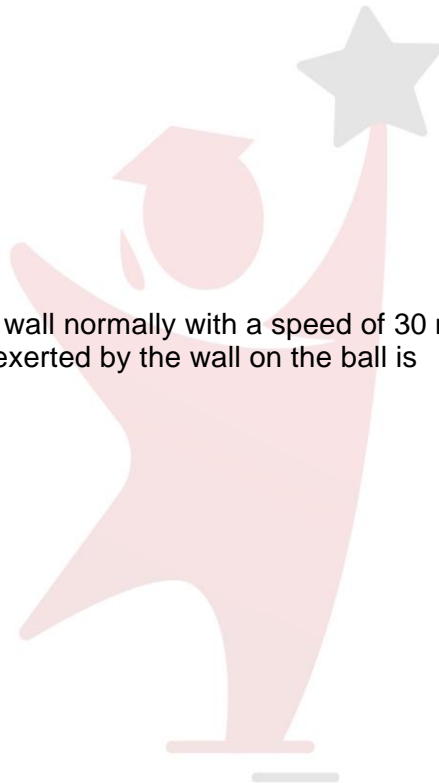
- Two masses, each equal to m , are attached to one another by a massless string passing over a smooth pulley. The tension in the string is
 - A) mg
 - B) $2mg$
 - C) $mg/2$
 - D) zero

(EPC03-0017E)

- A ball of mass 0.1 kg strikes a wall normally with a speed of 30 m/s and rebounds with a speed of 20 m/s . The impulse of the force exerted by the wall on the ball is
 - A) 1 NS
 - B) 5 NS
 - C) 2 NS
 - D) 3 NS

(EPC03-0021M)

- A 6 kg box sled is travelling on ice at a speed of 9 m/s when a 12 kg packet is dropped into it vertically. The velocity of the sled will now be
 - A) 3 m/s
 - B) 4 m/s
 - C) 6 m/s
 - D) 8 m/s



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Answer key	
1	D
2	A
3	B
4	A
5	B
6	B
7	B
8	D
9	A
10	B
11	B
12	C
13	A
14	B
15	A

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