An Olympic athlete throws a javelin at four different angles above the horizontal, each with the same speed: 30°, 40°, 60°, and 80°. Which two throws cause the javelin to land the same distance away? *

(2 نقطة)

$40°$ and $60°$

$30°$ and $80°$

$40°$ and $80°$

$30°$ and $60°$

A particle moving in the xy-plane has

* velocity vector

(2 نقطة)

...tion of its acceleration at $t = 1$ sec :

18.4°

45.0°

14.0°

26.6°

A plane flies from a base a distance 580 km at a direction of 10.0° north of east for 2 hours and then flies 190 km 30.0° west of north for 1 hour. The magnitude and direction of the plane displacement at the end of this trip are:

Select one:

○ 150 km at an angle 60° west of north

● 545 km at an angle 29° north of east

○ 452 km at an angle 33° north of east

○ 280 km at an angle 50° north of east

○ 362 km at an angle 40° north of east

A ball is hit so that it travels straight upward after being struck by the bat (مضرب). If it takes 8.00 seconds for the ball to reach its maximum height, its initial speed (in m/s) is:

Select one:

○ 88.2

○ 68.6

● 78.4

○ 98

○ 29.4

A particle moves along the xy-p
according to the equation
r = (20 + 3t + t^2) i + (3t^2 - 2t -
speed at t = 5 seconds is:

Select one:

37

43

66

25

31

A particle moves along the xy-plane according to the equation
$r = (20 + 3t + t^2)\,i + (3t^2 - 2t + 3)\,j$. Its speed at $t = 9$ seconds is:

Select one:

○ 18

○ 27

○ 43

○ 22

○ 56

A projectile is thrown from the top of a building with an initial velocity of 38 m/s in the horizontal direction. If the top of the building is 70 m above the ground, how fast (in m/s) will the projectile be moving just before it strikes the ground?
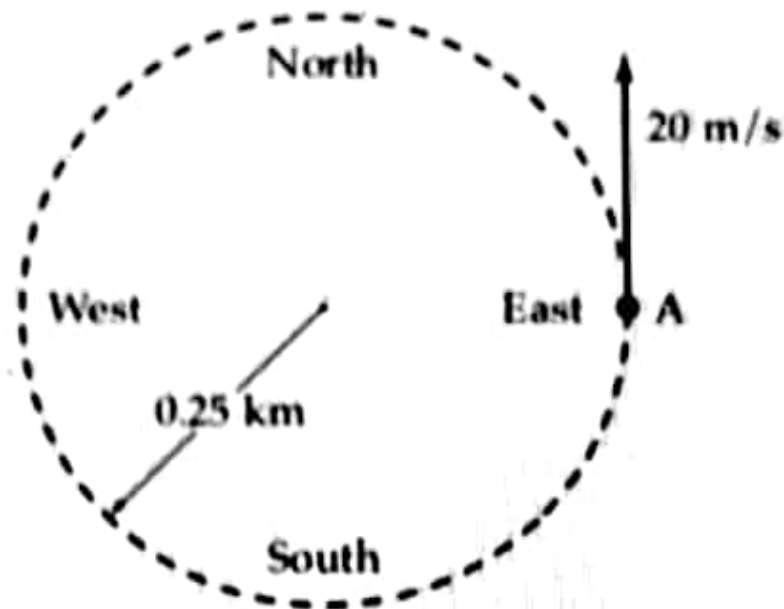
اختر أحد الخيارات

56

59

62

53 ●

65

A car travels counterclockwise around a flat circle of radius 0.25 km at a constant speed of 20 m/s. When the car is at point A as shown in the figure, what is the car's acceleration?

[Hint: magnitude and direction]

Select one:

○ Zero

○ 1.6 m/s^2, north

○ 1.6 m/s^2, east

○ 1.6 m/s^2, south

● 1.6 m/s^2, west

An object is thrown vertically upward such that it has a speed of 5.00 m/s when it reaches one third of its maximum height above the launch point. Its maximum height (in m) is

Select one:

○ 17

○ 10

7

2

4

The speed of a particle moving in a circle 2.0 m in radius increases at the constant rate of 4.4 m/s^2. At an instant when the magnitude of the total acceleration (in m/s^2) is 6.0 m/s^2, what is the speed of the particle?
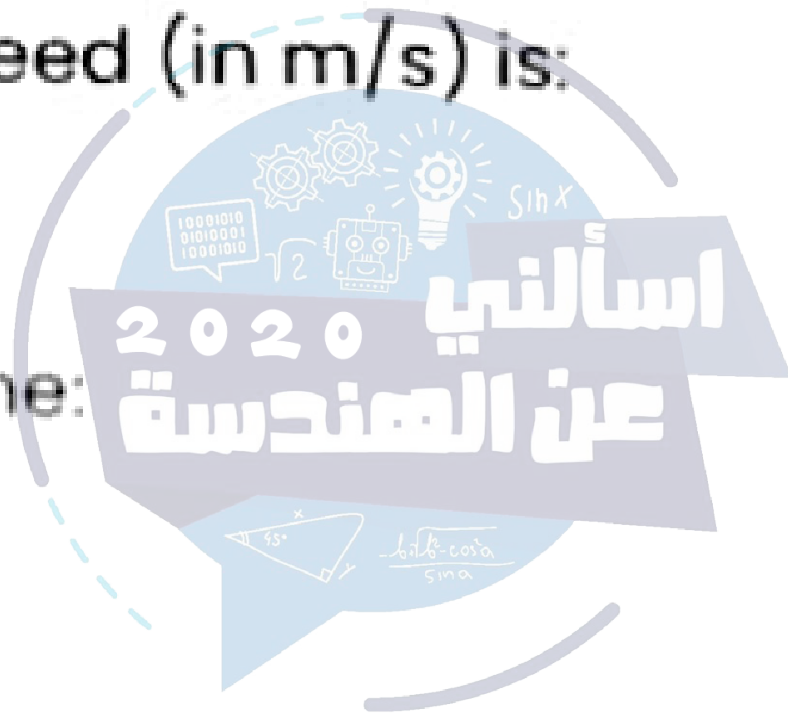
Select one:

  5

  ● 2.9

  1.5

  3.5

  4

A ball is hit so that it travels straight upward after being struck by the bat (مضرب). If it takes 5.00 seconds for the ball to reach its maximum height, its initial speed (in m/s) is:

Select one:

- ○ 58.8
- ◉ 49
- ○ 39.2
- 29.4
- 68.6

A ball is hit so that it travels straig'
upward after being struck by the k
(مضرب). If it takes 8.00 seconds for
ball to reach its maximum height,
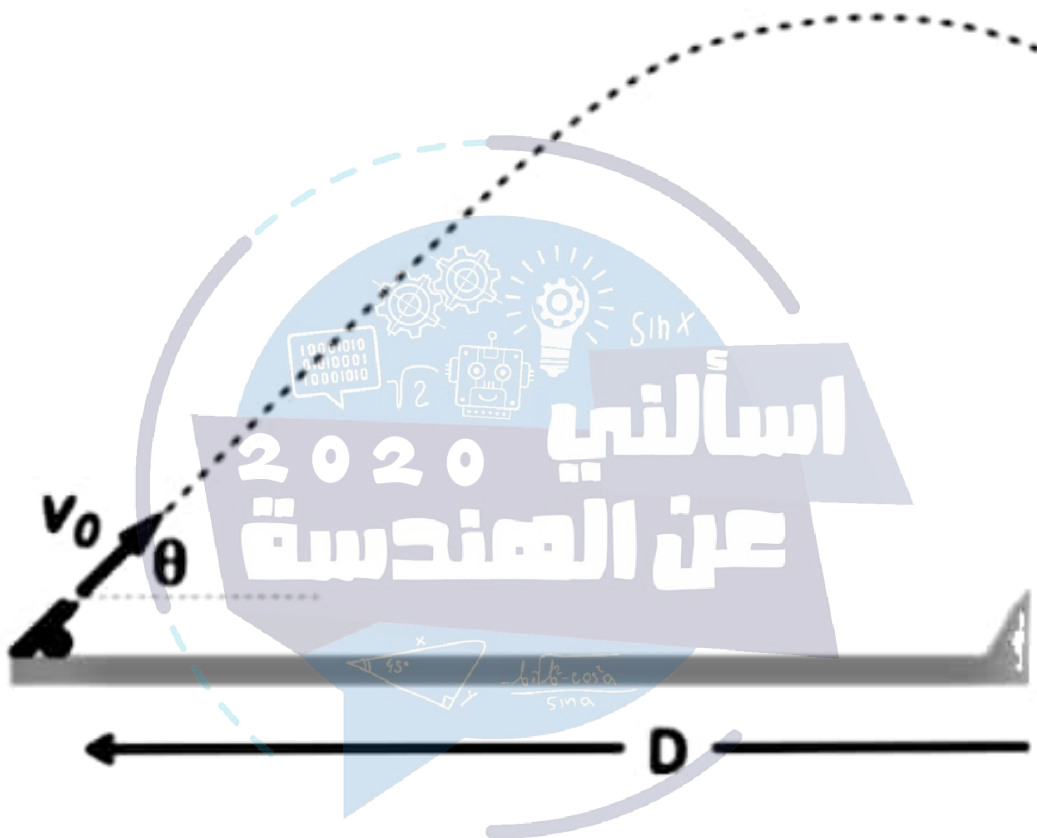initial speed (in m/s) is:

Select one:

- ● 78.4

- 68.6

- 29.4

- 88.2

- 98

A cannon ball is fired with initial speed of 130 m/s at an angle $\theta =$ 56 degrees above horizontal. After 16.48 seconds it strikes the top of the hill as shown. What is the vertical distance H between the firing point and the top of the hill?

Select one:
- ○ 650.28 m
- ○ 513.65 m
- ○ 810.25 m
- ○ 786.9 m
- ○ 445.33 m

At t = 0, a particle leaves the origin with a velocity of 11 m/s in the positive y-direction and moves in the xy plane with a constant acceleration of (2 i - 4 j) m/s² At the instant the x coordinate of the particle is 16 m, what is the speed of the particle?
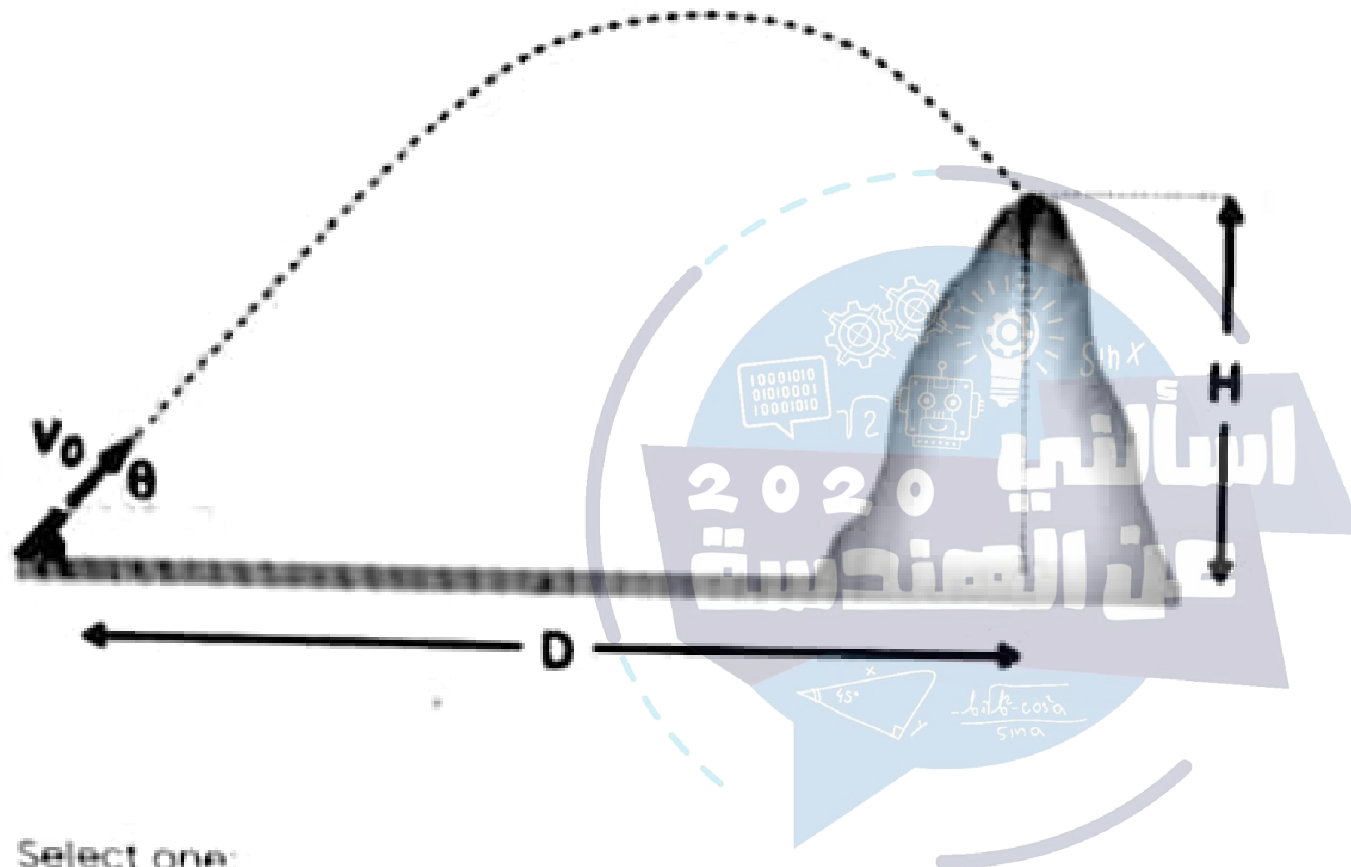
10.0 m/s

8.54 m/s

● 10.8 m/s

9.43 m/s

8.94 m/s

At t = 0, a ball leaves the origin with a velocity of (2.00 j) m/s and moves in the xy plane with a constant acceleration of (4.00 i + 2.00 j) m/s^2 When the x coordinate of the particle becomes 18.0 m, the speed (in m/s) c the ball will be

Select one:

28.2

17

14.4

25.1

● 12.5

A cannon ball is fired with initial speed of 130 m/s at an angle θ = 56 degrees above horizontal. After 16.48 seconds it strikes the top of the hill as shown. What is the vertical distance H between the firing point and the top of the hill?

Select one:

810.25 m

850.28 m

5;3.65 m

445.33 m

⁻86.9 m

The speed of a particle moving in a circle 4.0 m in radius increases at the constant rate of 4.4 m/s^2. At an instant when the magnitude of the total acceleration (in m/s^2) is 6.0 m/s^2, what is the speed of the particle?

5

15

29

35

4

The speed of a particle moving in a circle 2.0 m in radius increases at the constant rate of 4.4 m/s^2. At an instant when the magnitude of the total acceleration (in m/s^2) is 6.0 m/s^2, what is the speed of the particle?

Select one:

- ○ 5
- ○ 3.5
- ○ 4
- ● 2.9
- ○ 1.5

velocity of (12.0 j) m/s and moves

the xy plane with a constant

acceleration of (2.00 i – 4.00 j) m/s

When the x coordinate of the parti

becomes 25.0 m, the speed (in m/

the ball will be

Select one:

28.2

12.8

11

17

25.1

At t = 0, a ball leaves the origin with a velocity of (2.00 j) m/s and moves in the xy plane with a constant acceleration of (2.00 i - 4.00 j) m/s^2. When the x coordinate of the particle becomes 36.0 m, the speed (in m/s) of the ball will be

Select one:

○ 25.1

○ 17

○ 28.2

○ 11

○ 13

A plane flies from a base a distance 380 km at a direction of 10.0° north of east for 2 hours and then flies 190 km 30.0° west of north for 1 hour. The magnitude and direction of the plane displacement at the end of this trip are:

Select one:

○ 545 km at an angle 29° north of east

○ 452 km at an angle 33° west of north

○ 280 km at an angle 50° north of east

○ 150 km at an angle 60° west of north

○ 362 km at an angle 40° north of east

A particle moves along the xy-plane according to the equation
$r = (20 + 3t + t^2) i + (3t^2 - 2t + 3) j$. Its speed at t = 6 seconds is:

Select one:

○ 24

○ 67

○ 43

● 37

○ 59

A cannon ball is fired with initial speed of 145 m/s at an angle Θ = 56 degrees above horizontal. After 16.48 seconds it strikes the top of the hill as shown. What is the vertical distance H between the firing point and the top of the hill?
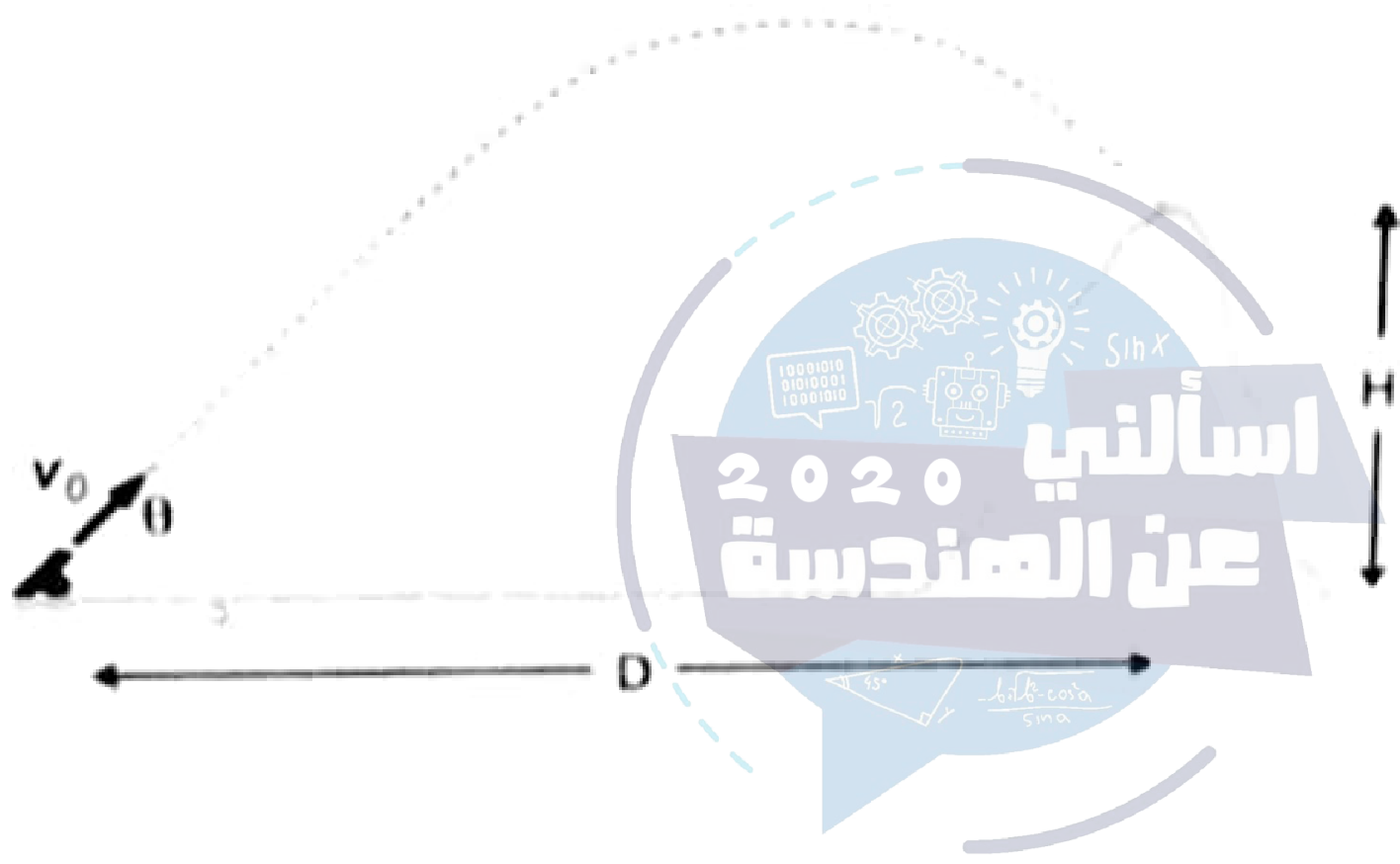
A plane flies from a base a distance 280 km at a direction of 10.0° north of east for 2 hours and then flies 190 km 30.0° west of north for 1 hour. The magnitude and direction of the plane displacement at the end of this trip are:

Select one:

452 km at an angle 33° west of north

150 km at an angle 60° west of north

545 km at an angle 29° north of east

• 362 km at an angle 40° north of east

An object is thrown vertically upward such that it has a speed of 8.00 m/s when it reaches two third of its maximum height above the launch point. Its maximum height (in m) is

Select one:

- ● 10
- ○ 4
- ○ 17
- ○ 7
- ○ 2

A projectile is thrown from the top of a building with an initial velocity of 42 m/sin the horizontal direction. If the top of the building is 90 m above the ground, how fast (in m/s) will the projectile be moving just before it strikes the ground?

Select one:

○ 59

○ 65

● 62

○ 56

○ 53

An object is thrown downward from a height h (m) above the ground with an initial speed of 10 m/s. It strikes the ground 3.0 s later. The height h is:

(A) 14
(B) 44
(C) 30
(D) 74
(E) 60

*Take g= 9.8 m/s²

A ball is thrown horizontally from the top of a building 0.12 km high. The ball strikes the ground at a point 65 m horizontally away from and below the point of release. The speed (in m/s) of the ball just before it strikes the ground is:

a) 31

b) 42

c) 50

d) 27

e) 17