OL Academy

PHYCS101
General Physics I

عبير عبدالله

مراجعة Test1

يشمل فيديوات الشرح التفصيلي والنوتات لجميع الدروس
بالإضافة إلى حل أسئلة امتحانات سابقة

وقت المراجعة

يوم غد الثلاثاء
1 أبريل 2025

من 07:00 PM
إلى 09:00 PM

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1) A racing car accelerates uniformly from rest to a speed of 27.8 m/s over a distance of 36.1 m. Determine the magnitude of its acceleration (in m/s^2)?

a) 15.4

b) 12.8

c) 11.6

d) 10.7

e) 9.93

2) A car traveling at v_1 = 22.4 m/s comes to a stop in 6 s. Determine the distance d (in m) travelled by the car, assuming uniform acceleration.

a) 22.4

b) 33.6

c) 44.8

d) 56.0

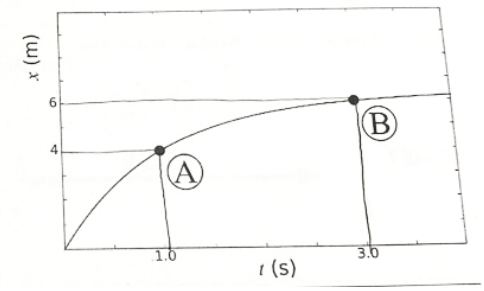
e) 67.2

3) For the given position-time diagram, find the average velocity between points A and B.

a) -4

b) -1

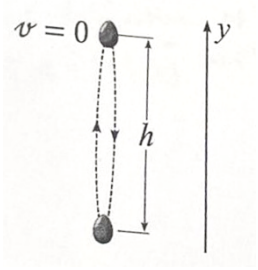
c) 0



d) 1

e) 4

4) An egg is thrown upward as shown in the figure. Which statement among the following is wrong?



a) The acceleration at the maximum height is zero.

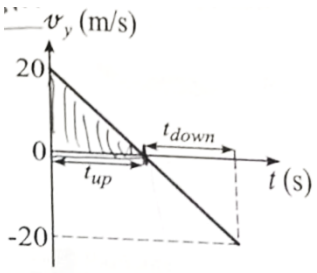
b) The total displacement is zero.

c) The total distance is 2h.

d) The speed decreases as the ball goes up.

e) The velocity v_y is negative as the ball falls down.

5) The velocity-time diagram of an object thrown upward is shown in the figure. What is the total distance travelled by that object?



a) 22.5

b) 40.0

c) 62.5

d) 90.0

e) More information is required.

6) You throw a ball straight up in the air and catch it 4.1 s later at the same place where you threw it. What is the maximum height (h) in m?

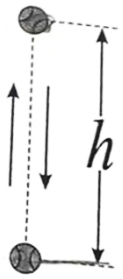
a) 1.8

b) 3.2

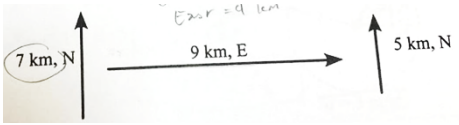
c) 6.0

d) 12.8

e) 21.0



7) A hiker walks 7.0 km due North, then walks 9.0 km due East. Finally, he travels another 5.0 km due North. What is the magnitude of his overall displacement (in km)?



a) 5

b) 10

c) 15

d) 20

e) None of the above

8) He positions of a projectile is given by: $\vec{r} = 3t\,\hat{i} + \left(4t - 5t^3\right)\hat{j}$, where $\vec{r}$ is in m and t is in second. Which statement among the following is **NOT** correct:

The acceleration is $\vec{a} = -10\,\hat{j}\ m/s^2$

The initial velocity is: $(3\hat{i} + 4\,\hat{j})\ m/s$

The speed decreases then increases

The projection angle: θ= 53°

The speed at maximum height is: 0

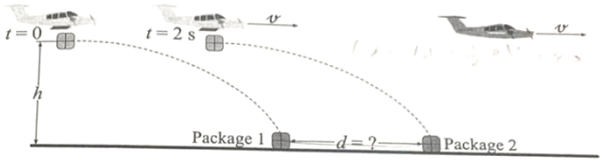
9) A plane flying horizontally at a speed v = 50 m/s and at an elevation of 160 m drops a package. Two seconds later it drops a second package. How far apart (in m) will the two packages land on the ground?

a) 100

b) 110

c) 120

d) 130



10) An astronaut jumps on the Moon at an angle of 45.0° above the ground with an initial speed of 3.5 m/s. If the free-fall acceleration on the Moon is g/6, then how far (in m) will he land?

a) 2.40

b) 3.75

c) 5.40

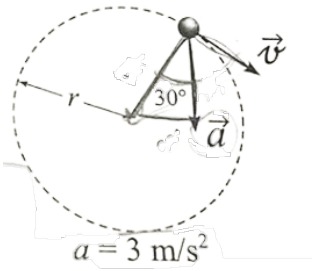
d) 7.35

e) 9.60

11) The figure represents the total acceleration of a particle moving clockwise in a circle of radius r at a certain instant of time. For that instant, the tangential acceleration (in m/s) is:

a) 1.0

b) 1.5

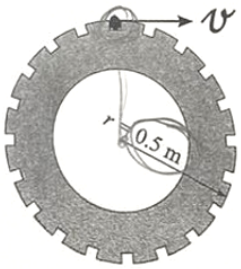


c) 2.0

d) 2.5

e) 3.0

12) A tire with a radius of 0.500 m rotates at constant rate of 180 revolution per minute. The speed (in m/s) of a small stone lodged in the thread of the tire (on its outer edge) is



a) 3π

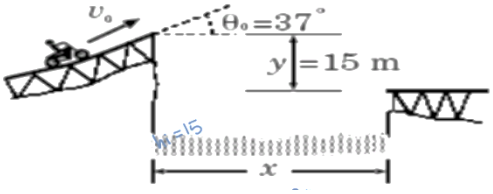
b) 4π

c) 5π

d) 6π

e) 7π

13) A man wants to jump across a river on his motorcycle, as in the figure. The take off ramp makes and angle θ =37° above the horizontal and is y=15 m higher than the other bank. If the river is x=30 m wide, then the driver minimum initial speed, in m/s, in order to make a successful jump is:



a. 10.2

b. 13.7

c. 16.7

d. 19.3

14) A ball is attached to the end of a cord of length r = 50 cm and rotates with a constant speed of V = 1 m/s in a horizontal circle as shown in the figure. How many revolutions it makes in one minute?

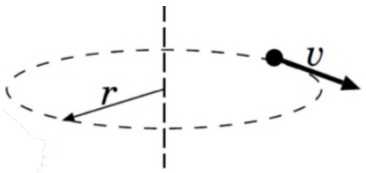
a. 9

b. 19

c. 25

d. 50

e. 60



15) The position-time (x - t) graph for five particles is shown in the figure. Which of the five particles has the largest velocity?

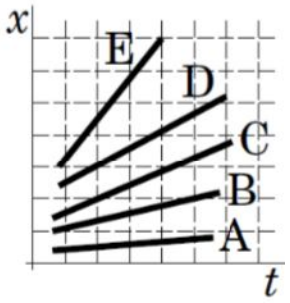
a. A

b. B

c. C

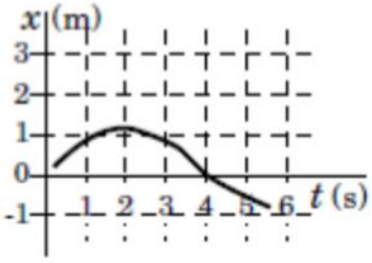
d. D

e. E



16) The position of a particle moving along the x axis is shown in the figure. At what time in s is the particle momentarily at rest?

a. 1



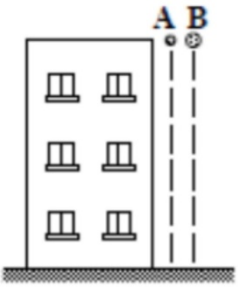
b. 2

c. 3

d. 4

e. 5

17) A boy on top of a 10 m high building is holding two balls. Ball A with mass c= 0.1 kg and ball B with mass m_b = 1 kg. He drops ball A (v_{A0}= 0) and at the same moment he throws ball B downward with a speed (v_{B0}=5 m/s). Which of the two ball falls with a greater acceleration?



a. Cannot be determined from the above information

b. Both have the same acceleration

c. A

d. B

e. None of the above

18) A super car travels a distance of 360 km in 1 hr. The car's average speed (in m/s) is:

a. 100

b. 33

c. 20

d. 50

e. 25

19) The position of a particle moving along the x axis is given by

x = t^3 where x is in m and t is in s. What is the particle's average acceleration in m/s? between t=1 s and t=4 s

a. 15

b. 18

c. 21

d. 24

e. 27

20) frog undergoes two consecutive displacements of $\vec{D}_1 = 3\hat{i} + 2\hat{j}$ m and $\vec{D}_2 = -2\hat{i} + 2\hat{j}$ m. What is the direction of the resultant displacement?

a. 76.0°

b. 63.4°

c. 45.0°

d. 53.1°

e. 38.7°