

Question **1**

Not yet answered

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What is the dimension of force per unit area (F/A)?

Select one:

- a. $ML^{-2}T^{-1}$
- b. ML^2T^{-1}
- c. M/LT^2
- d. MLT^{-1}

Question 2

Not yet answered

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If the only forces acting on a 2-kg mass are $F_1 = (3\hat{x} - 3\hat{y})$ N and $F_2 = (5\hat{x} + 3\hat{y})$ N, what is the magnitude of the acceleration of the particle?

Select one:

- a. 6 m/s^2
- b. 4.7 m/s^2
- c. 9.4 m/s^2
- d. 4 m/s^2

Question **3**

Not yet answered

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A car travels with constant acceleration along a straight road. How much time does the car take to increase its speed from 30 m/s to 50 m/s in a distance of 180 m?

Select one:

- a. 3.6 s
- b. 17.2 s
- c. 4.5 s
- d. 9 s

Question **4**

Not yet answered

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If $\vec{A} = 3\hat{x} - 4\hat{y}$, $\vec{B} = 2\hat{x} + 3\hat{y}$, and $\vec{C} = \hat{x} + 2\hat{y}$, the magnitude of $\vec{A} + \vec{B} - \vec{C}$ is:

Select one:

- a. 2
- b. 5
- c. 8
- d. 7

Question **5**

Not yet answered

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A 2-kg object is moving along x-axis. What is the work done in changing its velocity from 4 m/s to 6 m/s?


Select one:

- a. 20 J
- b. 16 J
- c. 48 J
- d. 32 J

Question **6**

Not yet answered

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 Flag question

The total mechanical energy of a football of mass 2 Kg in its highest level of 30 m above the ground is:

Select one:

- a. 800 J
- b. 1200 J
- c. 600 J
- d. 1000 J

Question **7**

Not yet answered

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A 5-kg block slides down a 30° rough incline (سطح مائل خشن) with constant acceleration. The block starts from rest at the top and travels 15 m to the bottom, where its speed is 3 m/s. The force of kinetic friction acting on the block is:

Select one:

- a. 25 N
- b. 23.5 N
- c. 22 N
- d. 26.5 N

Question **8**

Not yet answered

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A 1200-kg car accelerates uniformly from rest to a speed of 8 m/s in 4 s. The average power delivered by the engine in this time interval is:

Select one:

- a. 2400 W
- b. 4800 W
- c. 9600 W
- d. 7200 W

Question **9**

Not yet answered

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A 2.5-kg block is released from rest 20 m above the ground. Its mechanical energy when it is 15 m above the ground is:

Select one:

- a. 500 J
- b. 300 J
- c. 200 J
- d. 600 J

A Particle starts from the origin at $t=0$ with a velocity of $3\hat{y}$ m/s and moves in the xy -plane with a constant acceleration of $(4\hat{x} - \hat{y})$ m/s². At the time when x -component of the particle's velocity is 8 m/s, what is the magnitude of y -component of its velocity?

Select one:

- a. 12 m/s
- b. 1 m/s
- c. 9 m/s
- d. 6 m/s

Question **11**

Not yet answered

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A stone is thrown upward from the top of a building that is 25 m high with a speed of 20 m/s. What is the velocity of the stone when it hits the ground?

Select one:

- a. -20 m/s
- b. 30 m/s
- c. 20 m/s
- d. -30 m/s

Question **12**

Not yet answered

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A man moves a box horizontally by exerting on it a force of 90 N directed at 60° above the horizontal. If the work done on the box is 450 J, the displacement of the box is:

Select one:

- a. 5 m
- b. 20 m
- c. 10 m
- d. 15 m

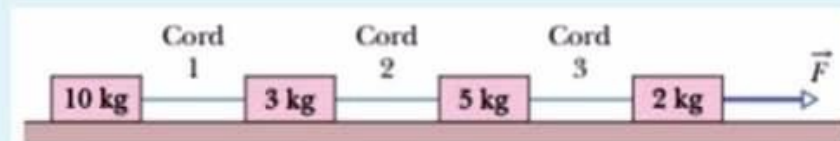
Question **13**

Not yet answered

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The Figure shows four blocks being pulled across a frictionless floor by a force $F = 40\text{ N}$. Find the magnitude of tension in cord 2.



Select one:

- a. 93 N
- b. 40 N
- c. 11 N
- d. 26 N

Question **14**

Not yet answered

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The velocity of a particle moving along the x axis is given by $v(t) = 4 + 12t - 3t^2$, what is the acceleration of the particle at $t=1$ s?


Select one:

- a. 6 m/s^2
- b. 15 m/s^2
- c. 40 m/s^2
- d. 12 m/s^2

Question **15**

Not yet answered

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A ball is thrown from the top of a hill with initial velocity of 20 m/s at an angle of 37° . If it reaches the ground after 3 s. The height of the hill is:

Select one:

- a. 36 m
- b. 32 m
- c. 45 m
- d. 9 m

Question 16

Not yet answered

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An object moves along the x-coordinate according to the equation $x(t) = (3 - 4t^2 + 9t^3)$ m.
The average velocity between $t=1$ and $t=2$ s is:

Select one:

- a. 92 m/s
- b. 73 m/s
- c. 51 m/s
- d. 61 m/s

Question **17**

Not yet answered

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A man of mass 70 kg is in an elevator that is accelerating upward at 4 m/s^2 . The force exerted on him by the elevator floor is:

Select one:

- a. 700 N
- b. 420 N
- c. 980 N
- d. 540 N