



مدونة المناهج السعودية

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الموقع التعليمي لجميع المراحل الدراسية

في المملكة العربية السعودية



Student Name:

Student Number:

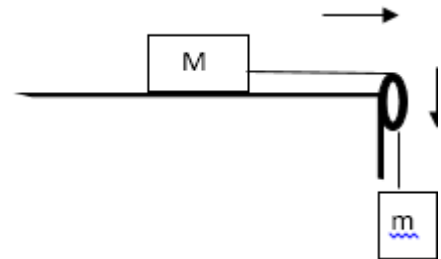
class:

**Choose the correct answer:**

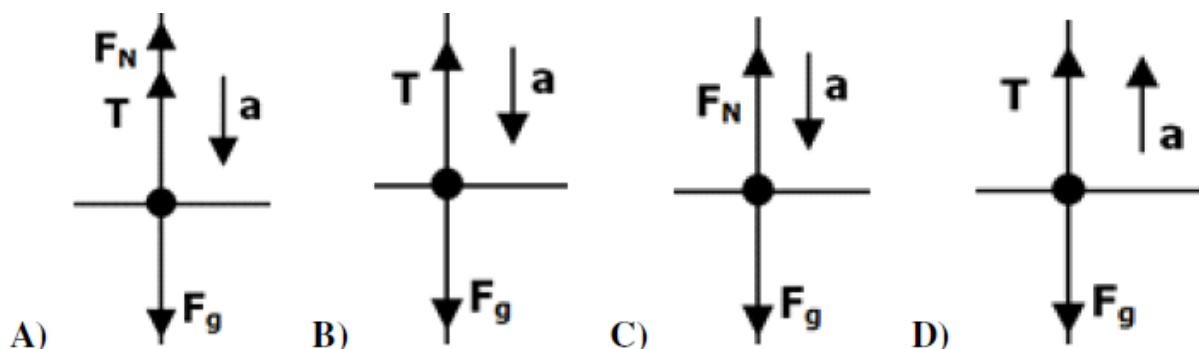
- Two forces  $\vec{F}_1 = 10\hat{i}$  &  $\vec{F}_2 = 24\hat{j}$  are applied to move a 2kg box. The magnitude of acceleration is:  
 A) 169 m/s<sup>2</sup>      B) 25 m/s<sup>2</sup>      C) 11 m/s<sup>2</sup>      D) 13 m/s<sup>2</sup>
- According to Q1: the direction of acceleration is:  
 A) 67.4°      B) -67.4°      C) 76.4°      D) -76.4°

Use the following to answer question 3-5

The block of mass **M** is connected to a block of mass **m** as shown in figure:

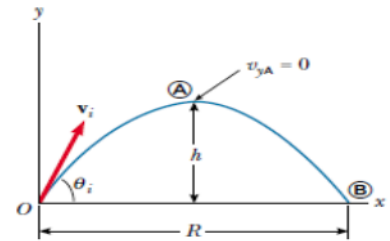


- The normal force  $F_N$  on block **M** is:  
 A)  $F_N = mg - T$       B)  $F_N = Mg$       C)  $F_N = mg$       D)  $F_N = Mg - T$
- In the diagram, if we cut the cord the acceleration of mass **m** is:  
 A)  $a = -9.8 \text{ m/s}^2$       B)  $a = \text{zero}$       C)  $a = 735 \text{ m/s}^2$       D)  $a = 4.9 \text{ m/s}^2$
- The free body diagram representing the forces on **m** is:



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At this figure show the Projectile motion



6. When the projectile fired from the origin with Initial speed  $V_0$  different  $\theta$ . **The maximum range  $R$**  occurs when

- A)  $\theta = 45^\circ$       B)  $\theta = 90^\circ$       C)  $\theta = 180^\circ$       D)  $\theta = 360^\circ$

7. In the projected body, the component of its **velocity in x-direction** ( $v_x$ ) is .....

- A) equal to  $V_0$       B)  $v_x$  unchanged  
C) changes with angle      D) changes with time

8. In the projectile motion, **the acceleration at heights point** is:

- A) zero      B)  $2g$       C)  $-2g$       D)  $-g$

9. A particle moving with initial velocity  $\vec{v} = -2\hat{i} + 4\hat{j}$ , and acceleration  $\vec{a} = -5\hat{i} + 8\hat{j}$ , the **x-component  $v_x$  of the final velocity** at ( $t = 1$  s) is :

- A)  $-7$  m/s      B)  $-27$  m/s      C)  $-37$  m/s      D)  $-17$  m/s

10. A particle moves in  $xy$  plane as:  $x(t) = 2t$  (m) and  $y(t) = t^2 - 1$  (m). **The velocity of the particle** at  $t = 1$  s is:

- A)  $\hat{i} + \hat{j}$  (m/s)      B)  $2\hat{i} + \hat{j}$  (m/s)      C)  $2\hat{i} - \hat{j}$  (m/s)      D)  $2\hat{i} + 2\hat{j}$  (m/s)

11. The velocity and the acceleration of a body in a **uniform circular motion** are:

- A) differed by  $45^\circ$       B) perpendicular      C) differed by  $135^\circ$       D) parallel

12. The gravitational force of earth acting on a 47 kg is:

- A) 9.8 N      B) 147 N      C) 47 N      D) 460.6 N

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13. In the figure, the magnitude of **the net force** on the block is:



- A) 9 N    B) 10 N    C) 11 N    D) 12 N

14. A stone is thrown at building of height  $h$  with initial speed 32 m/s directed  $60^\circ$  the stone landed on the roof after 4s **the vertical height** is :

- A)  $\Delta y = 78.4$  m    B)  $\Delta y = 17.4$  m    C)  $\Delta y = 32.45$  m    D)  $\Delta y = 20.5$  m

15. From question 14, the horizontal velocity ( $v_x$ ) is:

- A)  $v_x = 16$  m/s    B)  $v_x = -16$  m/s    C)  $v_x = 27$  m/s    D)  $v_x = -27$  m/s

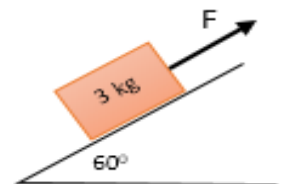
16. A projectile is launched to achieve a **maximum range** of 140 m, the **speed of the projectile** must be:

- A) 17 m/s    B) 27 m/s    C) 37 m/s    D) 45 m/s

17. A car travels east at **constant velocity**. The net force on the car is:

- A) Zero    B) down    C) up    D) east

18. In the figure shown the block of mass 3 kg is **at rest** on a smooth inclined plane with angle  $60^\circ$  under the action of  $F$ , **the magnitude of force  $F$**  is:



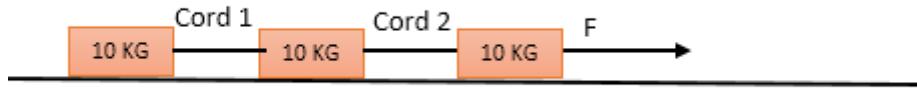
- 5 N    B) 215 N    C) 14.7 N    D) 25.5 N

19. A person of mass 80 kg stands on spring scale in an elevator that has **upward acceleration of 3 m/s<sup>2</sup>** the scale will read:

- A) 12.8 N    B) 1024 N    C) 544 N    D) 784 N

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20. The figure shows a train of three blocks being pulled across a frictionless floor by force  $F$ , with an acceleration equal  $3 \text{ m/s}^2$ , the magnitude of force  $F$  on the three blocks is:



- A) zero      B) 30 N      C) 60 N      D) 90 N

21. Acceleration is always in the direction of:

- A) displacement      B) net force      C) velocity      D) none of these

22. A book rests on a table, exerting a downward force on it. The reaction to this force is:

- A) Force from the Earth on the table  
B) Force from the book on Earth  
C) Force from the Earth on the book  
D) Force from the table on the book

23. A projectile is fired with a velocity of  $60 \text{ m/s}$  at angle of  $\theta$  to horizontal. If the range ( $R$ ) is  $337 \text{ m}$  the angle  $\theta$  is:

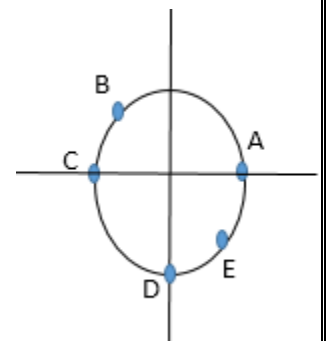
- A)  $\theta = 337^\circ$       B)  $\theta = 33.27^\circ$       C)  $\theta = 40^\circ$       D)  $\theta = 40.5^\circ$

24. Stone thrown from the top of tall building follows a path that is

- A) Parabolic      B) Hyperbolic      C) Straight line      D) Circular

25. A particle is moving in circular path, at point E, the particles velocity is  $\vec{v} = 5\hat{i} + 8\hat{j}$ . At which point the velocity is  $\vec{v} = -5\hat{i} - 8\hat{j}$ .

- A) Point A      B) point B      C) point C      D) point D



26. A rope from the ceiling suspends a ball of **weight 400 N**. the **tension** in the rope is:

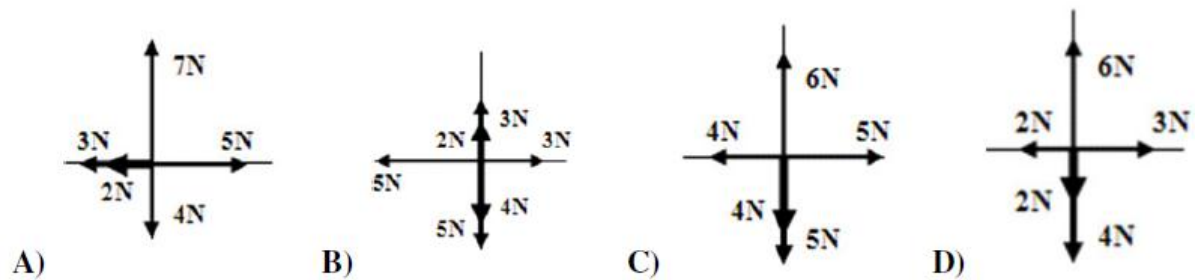


- 200 N                      B) 400 N                      C) 800 N                      D) 560 N

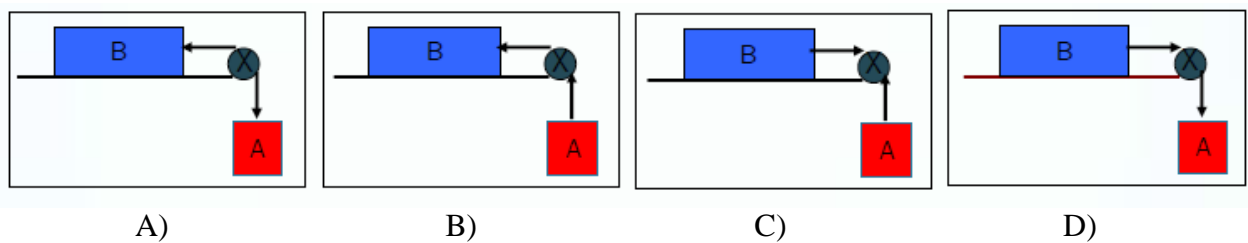
27. The **physical quantities** are measured in the **same units** are:

- A) Weight and tension                      B) velocity and displacement  
 C) mass and weight                      D) fraction and acceleration

28. In which figure of the following **the x-component of the net force is negative value?**



29. Show the correct direction of the tension force T:



30. Definition as the time for particle go around the circle once:

- A) acceleration                      B) period                      C) velocity                      D) force

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31. A car moves in a **circular road** of radius 2m with speed 4m/s, **the car's acceleration** is:

- A)  $1 \text{ m/s}^2$                       B)  $8 \text{ m/s}^2$                       C)  $4 \text{ m/s}^2$                       D)  $2 \text{ m/s}^2$

32. An object moves at constant speed of 5 m/s **on circular path** of radius 10m. **the period** in seconds is:

- A)  $3\pi^3$                       B)  $\pi$                       C)  $4\pi$                       D) 20

33. The weight of a body is equal 686 N, **its mass** is:

- A) 1000 kg                      B) 200 kg                      C) 70 kg                      D) 686 kg

