Chapter 4: MOTIN IN 2D AND 3D

1. If the x component of vector $\vec{r}$ is 2.6 m and the y component is -2.3 m then $\vec{r}$ in unit-vector notation is:

(A) $2.6\ \hat{i} - 2.3\ \hat{j}$ (B) $-2.3\ \hat{i} + 2.6\ \hat{j}$ (C) $6.2\ \hat{i} + 3.2\ \hat{j}$ (D) $3.2\ \hat{i} - 6.2\ \hat{j}$

---

2. The displacement of a particle moving from $\vec{r}_1 = 5\hat{i} - 6\hat{j} + 2\hat{k}$ to $\vec{r}_2 = -2\hat{i} + 6\hat{j} + 2\hat{k}$ is

(A) $-7\hat{i} + 12\hat{j}$ (B) $3\hat{i} + 4\hat{k}$ (C) $7\hat{i} - 12\hat{j}$ (D) $-3\hat{i} - 4\hat{k}$

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3. A particle goes from (x_1=-2m, y_1=3m, z_1=1m) to (x_2=3m, y_2=-1m, z_2=4m). Its displacement is:

(a) $\hat{i} + 2\hat{j} + 5\hat{k}$ (b) $5\hat{i} - 4\hat{j} + 3\hat{k}$ (c) $-5\hat{i} + 4\hat{j} - 3\hat{k}$ (d) $-\hat{i} - 2\hat{j} - 5\hat{k}$

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4. The coordinates of a car's position as function of time is given by: x = $5t^2$ +16, and y = $-t^3$ +5, the magnitude of position vector $\bar{r}$ at t=2s is:

(a) 5 m (b) 1 m (c) 2.6 m (d) 4 m

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5. The components of a car's velocity as a function of time are given by :

V_x= 2 t + 3, and V_y= 4 t – 1, its velocity $\vec{V}$ at (t= 1 s) is:

(A) $\vec{V} = 9\hat{i} + 11\hat{j}$ (B) $\vec{V} = 5\hat{i} + 3\hat{j}$ (C) $\vec{V} = 7\hat{i} + 7\hat{j}$ (D) $\vec{V} = 11\hat{i} + 15\hat{j}$

---

6. Velocity is defined as:

(a) rate of change of position with time (b) position divided by time (c) a speeding up or slowing down (d) change of position

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7. The position of a particle moving on an x axis is given by: X= t^2 + 2 , its average velocity in the time interval from t=1s to t=2s is:

(a) 4 m/s (b) 2 m/s (c) 3 m/s (d) 1 m/s

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8. A car travels east at 200 m/s and then travels west at 200 m/s, the change in its velocity is:

(a) zero (b) 400 m/s east (c) 400 m/s west (d) 200 m/s west

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9. The position vector for a moving particle is: $\bar{r} = \hat{i} + 4t^2\hat{j} + t\hat{k}$, its velocity and acceleration as a function of time are:

(a) $\bar{v} = 8t\hat{j} + \hat{k}$, $\bar{a} = 8\hat{j}$

(b) $\bar{v} = \hat{i} + 8t\hat{j} + \hat{k}$, $\bar{a} = 8\hat{j} + \hat{k}$

(c) $\bar{v} = 8t\hat{j}$, $\bar{a} = \hat{i} + 8\hat{j}$

(d) $\bar{v} = 8t^2\hat{j} + t\hat{k}$, $\bar{a} = 8\hat{j}$

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10. A particle moves in the xy plane. In which situation of the following V_x and V_y are both constant

Situation	X(m)	Y(m)
A	$2t^2$	$4t+3$
B	$4t^3-2$	$+3$
C	$5t$	$2t+1$
D	$-3t$	t^2-1

(a) A (b) B (c) C (d) D

---

11. The components of a car's velocity as a function of time are given by $v_x = 6t^2 - 5$, $v_y = -3t^3$. The acceleration components are:

(A) $a_x = 10t$, $a_y = -12t^2$ (B) $a_x = 4t$, $a_y = -6t^2$ (C) $a_x = 6t$, $a_y = -15t^2$ <u>(D) $a_x = 12t$, $a_y = -9t^2$</u>

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12. A particle moving with initial velocity $\vec{v}_0 = -2\hat{i} + 4\hat{j}$ m/s, and acceleration $\vec{a} = -5\hat{i} + 8\hat{j}$ m/s^2, the x-component v_x of the final velocity at (t=1 s) is ?

<u>(A) -7 m/s</u> (B) - 17 m/s (C) -27 m/s (D) -37 m/s

---

13. Acceleration is defined as:

(a) rate of change of position with time (b) speed divided by time (c) rate of change of velocity with time (d) change of velocity

---

14. A particle had a speed of 18 m/s in the +x direction and after 2.4 s its speed was 30 m/s in the –x direction. Its average acceleration during this time is:

(a) $a = \frac{-30-18}{2.4}$ (b) $a = \frac{30-18}{2.4}$ (c) $a = \frac{18+30}{2.4}$ (d) $a = \frac{18-30}{2.4}$

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15. A particle moving with $\vec{v}_0 = 2\hat{i} + 5\hat{j}$ and acceleration $\vec{a} = 5\hat{j}$. Its velocity after 2s is:

(a) 15 m/s (b) 12 m/s (c) $\sqrt{29}$ m/s (d) $\sqrt{43.2}$ m/s

---

16. A particle leaves the origin with initial velocity $\vec{v}_0 = 8\hat{i} + 12\hat{j}$ m/s and a constant acceleration $\vec{a} = 4\hat{i} - 2\hat{j}$ m/s^2. The particle's velocity at t = 6 s is:

(a) $\vec{v} = 24\hat{j}$ $\vec{v} = 32\hat{i} + 24\hat{j}$ (c) $\vec{v} = 32\hat{i}$ (d) $\vec{v} = 32\hat{i} - 12\hat{j}$

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17. Acceleration is equal to

(a) $\frac{d\vec{v}}{dt}$ (b) $\frac{d\vec{r}}{dt}$ (c) $\frac{d\vec{v}}{dr}$ (d) $\frac{\Delta\vec{r}}{\Delta t}$

---

18. The range of a ball is thrown at an angle of 30° above the horizontal with an initial speed 50 m/s is:

(A) 318.1 m (B) 267.3 m (C) 373.4 m (D) 220.9 m

19. The maximum range of a projectile is at launch angle

(A) θ = 25° (B) θ = 35° (C) θ = 45° (D) θ = 55°

20. In the projectile motion the acceleration in the horizontal direction is:

(A) 19.6 m/s^2 (B) zero (C) 9.8 m/s^2 (D) 4.9 m/s^2

21. The range of a ball is thrown at an angle of 30° above the horizontal with an initial speed 50 m/s is:

(A) 318.1 m (B) 267.3 m (C) 373.4 m (D) 220.9 m

22. A large cannon fired a ball at an angle of 30^0 above the horizontal with initial speed 980m the projectile will travel what horizontal distance before striking the ground?

(a) 4.3 km (b) 8.5 km (c) 43 km (d) 85 km

23. A stone thrown from the top of a tall building follows a path that is:

(a) circular (b) parabolic (c) hyperbolic (d) a straight line

24. Two projectiles are in flight at the same time. The acceleration of one relative to the other:

(a) is always 9.8 m/s^2 (b) can be as large as 19.8 m/s^2 (c) can be horizontal (d) is zero

25. A ball is thrown at V_0 and angle θ_0 above horizontal and returned to its initial height. The path of the ball is called:

(a) Range (b) Trajectory (c) Horizontal path (d) Vertical path

26. In question 25, the horizontal component of the ball's velocity V_{x0} is:

(a) V_{x0} = unchanged (b) V_{x0} = zero (c) $V_{x0} = V_0$ (d) V_{x0} is changed

27. In question 25, at the maximum height, the vertical component of the ball's velocity V_y is:

(a) $V_y = V_x$ (b) $V_y = V_0$ (c) V_y = zero (d) $V_y = V_{0y}$

28. A ball is thrown with initial velocity v_0=120 m/s at an angle θ_0=60° above the horizontal, the velocity v_0 in unit vector notation is:

(a) $\bar{v}_0 = 104\hat{i} + 60\hat{j}$ (b) $\bar{v}_0 = 60\hat{i} + 104\hat{j}$ (c) $\bar{v}_0 = 60\hat{i}$ (d) $\bar{v}_0 = 104\hat{j}$

29. In question 28, the acceleration in the horizontal direction when t=5 s is:

(a) 24 m/s^2 (b) – 9.8 m/s^2 (c) zero (d) 600 m/s^2

30. In question 28, the maximum range of the ball is:

(a) 1469.4 m (b) 1272.5 m (c) 1649.4 m (d) 1722.5 m

31. The horizontal range is the horizontal distance the projectile has traveled when it returns to ……

(a) the origin (b) its max. height (c) its final height (d) its initial height

32. You are to launch a rocket, from just above the ground, with one of the following initial velocity vectors: (1) $\bar{v}_0 = 20\hat{i} + 70\hat{j}$, (2) $\bar{v}_0 = -20\hat{i} + 70\hat{j}$, (3) $\bar{v}_0 = 20\hat{i} - 70\hat{j}$, (4) $\bar{v}_0 = -20\hat{i} - 70\hat{j}$. Rank the vector according to the launch speed greatest first.

(a) 4 >3 > 2 > 1 (b) 4 > 2 > 3 >1 (c) 1 > 2 > 3 > 4 (d) all the same

33. In the projectile motion, the vertical velocity component v_y

(a)changes continuously (b) remains constant (c) equals zero (d) $v_y$equals v_x

34. The maximum range of a projectile is at launch angle

(a) $\theta = 25°$ (b) $\theta = 35°$ (c) $\theta = 45°$ (d) $\theta = 55°$

35. In the projectile motion the horizontal velocity component v_x remains constant because the acceleration in the horizontal direction is:

(a) $a_x > 0$ (b) $a_x = g$ (c) $a_x > g$ (d) $a_x = 0$

36. The range of a ball is thrown at an angle of 30° above the horizontal with an initial speed 50 m/s is:

(a) 318.1 m (b) 267.3 m (c) 373.4 m (d) 220.9 m

37. A ball is thrown at an angle of 30° above the horizontal with an intial speed 980 m/s. The ball's range is:

(a) 4.3 km (b) 8.5 km (c) 43 km (d) 85 km

38. In the projectile motion the horizontal velocity component v_x remains constant because the acceleration in the horizontal direction is:

(a) $a_x = 0$ (b) $a_x > 0$ (c) $a_x = g$ (d) $a_x > g$

39. A ball is thrown at V_0 and angle θ_0 above horizontal and returned to its initial height. The path of the ball is called:

(a) Range (b) Trajectory (c) Horizontal path (d) Vertical path

40. In question 39, the horizontal component of the ball’s velocity V_{x0} is:

(a) V_{x0} = unchanged (b) V_{x0} = zero (c) $V_{x0} = V_0$ (d) V_{x0} is changed

41. In question 39, at the maximum height, the vertical component of the ball's velocity V_y is:

(a) $V_y = V_x$ (b) $V_y = V_0$ (c) V_y = zero (d) $V_y = V_{0y}$

42. The period of an objects moving at a constant speed of 4 m/s on a circular path of radius 2 m is:

(A) π s (B) 2π s (C) 4π s (D) 8π s

43. The period of an objects moving at a constant speed of 4 m/s on a circular path of radius 2 m is:

(A) π s (B) 2π s (C) 4π s (D) 8π s

44. A particle moves at constant speed in a circular path. The instantaneous velocity and instantaneous acceleration vectors are:

(a) both tangent to the circular path (b) both perpendicular to the circular path (c) perpendicular to each other (d) opposite to each other

45. For a biological sample in a 1:0-m radius centrifuge to have a centripetal acceleration of 25g, its speed must be:

(a) 11 m/s (b) 16 m/s (c) 50 m/s (d) 122 m/s

46. A stone is tied to a 0.50-m string and whirled at a constant speed of 4m/s in a vertical circle. Its acceleration at the top of the circle is:

(a) 9.8 m/s^2, up (b) 9.8 m/s^2, down (c) 32 m/s^2, up (d) 32 m/s^2, down

47. A stone is tied to a 0.50-m string and whirled at a constant speed of 40m/s in a vertical circle. Its acceleration at the bottom of the circle is:

(a) 9.8 m/s^2, up (b) 9.8 m/s^2, down (c) 32 m/s^2, up (d) 32 m/s^2, down

48. A car rounds a 20-m radius curve at 10m/s. The magnitude of its acceleration is:

(a) zero (b) 0.2 m/s^2 (c) 5 m/s^2 (d) 40 m/s^2

49. The speed of a car moving in a circular path of radius 20 m with a centripetal acceleration of 5 m/s^2 is:

(a) 10 m/s (b) 100 m/s (c) 4 m/s (d) 2000 m/s

50. The period of a plane that enters a horizontal circular turn with $\bar{v}_i = 200\hat{i} + 600\hat{j}$ m/s and 32 s later leaves the turn with $\bar{v}_f = 200\hat{i} + 600\hat{j}$ is:

(a) 12 (b) 16 (c) 32 (d) 64

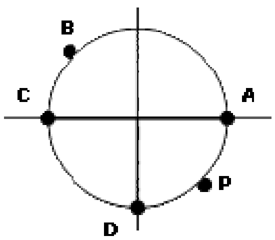
51. The period of an objects moving at a constant speed of 4 m/s on a circular path of radius 2 m is:

(a) π s (b) 2π s (c) 4π s (d) 8π s

52. Referring to question 51, the acceleration of the object is:

(a) 1 m/s^2 (b) 2 m/s^2 (c) 4 m/s^2 (d) 8 m/s^2

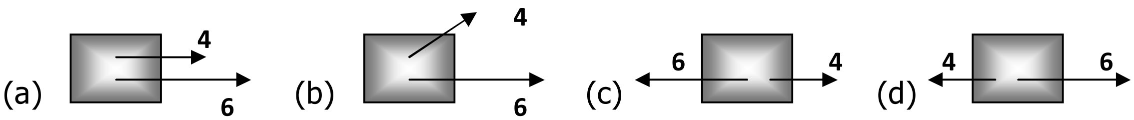
53. A particle is moving in circular path, at point P the particles velocity is: $\vec{v} = 3\hat{i} + 4\hat{j}$ at which point the velocity is $\vec{v} = -3\hat{i} - 4\hat{j}$



(a) A (b) B (c) C (d) D

Chapter 5: FORCE AND MOTIN I

1. The figures below shows four situation in which forces act on a block that lies on a frictionless floor. In which figure the block has the **greatest acceleration**?



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2. A force of **0.2 N** acts on a mass of **100 g**, what is its **acceleration**?

(a) 2×10^{-2} m/s^2 (b) 2×10^{-6} m/s^2 (c) 2×10^{-3} m/s^2 (d) 2 m/s^2

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3. A man **pulls** a box of **mass 3 kgvertically upward** with a force of magnitude **40 N**. What is the **acceleration of the box**?

(a) $a = \frac{T - mg}{m}$ (b) $a = \frac{mg - T}{m}$ (c) $a = \frac{T + mg}{m}$ (d) $a = \frac{m}{T + mg}$

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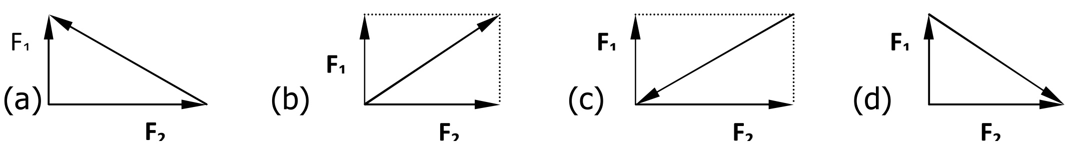
4. Which of the following figures correctly show the vector **addition of forces F_1 and F_2** ?



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5. If the **1 kg** body has an **acceleration of 2 m/s^2** at an angle of **20°** above the positive direction of the x-axis. What is the **net force** in unit vctor notation?

(a) $\vec{F} = 0.34\hat{i} + 0.94\hat{j}$ (b) $\vec{F} = 1.88\hat{i} + 0.68\hat{j}$ (c) $\vec{F} = 0.68\hat{i} + 1.88\hat{j}$ (d) $\vec{F} = 0.94\hat{i} + 0.34\hat{j}$

---

6. Two forces act on a particle that moves with **constantvelocity** $\vec{v} = 3\hat{i} - 4\hat{j}$ **m/s**, one of the forces is $\vec{F}_1 = 2\hat{i} - 6\hat{j}$ **N**,what is the other force?

(a) $\vec{F}_2 = 2\hat{i} - 6\hat{j}$ (b) $\vec{F}_2 = 6\hat{i} - 10\hat{j}$ (c) $\vec{F}_2 = -2\hat{i} + 6\hat{j}$ (d) $\vec{F}_2 = -6\hat{i} + 10\hat{j}$

---

7. A particle has a **weight of 22 N** at a point where **g = 9.8 m/s^2**, what are its **mass and weight** at a point where **g = 0** ?

(a) m = 2.2 kg
W = 0

(b) m = 0
W = 2.2 N

(c) m = 0.45 kg
W = 0

(d) m = 0
W = 45 N

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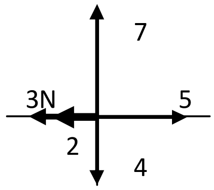
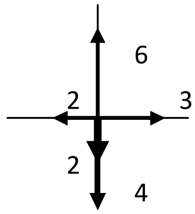
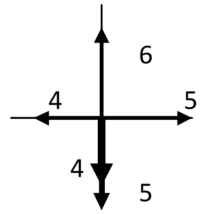
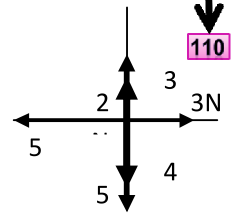
8. In which figure of the following the **y-component of the net force is zero**?

(a) 

(b) 

(c) 

(d) 

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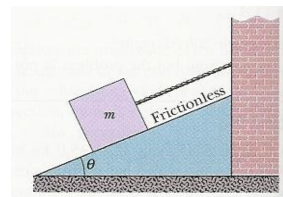
9. In the figure a cord holds stationary a block of mass **m = 8.5 kg** on a frictionless plane that is inclined at An angle **θ = 30°**, **the tension in the cord T** equals:



(a) 72.14 N (b) 83.3 N (c) 53.14 N (d) 41.65 N

---

10. In question9, the **Normal forceN** acting on the block is:

(a) $N= F_g - mg\cos\theta$ (b) $N= F_g\cos\theta$ (c) $N= F_g+mg\cos\theta$ (d) $N= F_g$

---

11. In question9, if the cord is **cut** then the mass will slide with **acceleration equals**:

(a) $a = -4.9\ m/s^2$ (b) $a = -9.8\ m/s^2$ (c) $a = -8.5\ m/s^2$ (d) $a = -3.4\ m/s^2$

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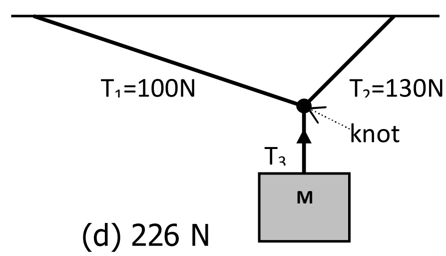
12. A block of mass **M= 20 kg** hangs from three cords by means of a knot, **(**the mass M does not move**)**, **what is the value of tensionT_3**?



(a) 230 N (b) 196 N (c) 426 N (d) 226 N

---

13. What is the net force acting on a body of a **mass of 48 kg** , when its **acceleration is 6 m/s²** ?

(a) 758 N (b) 182 N (c) 288 N (d) 470 N

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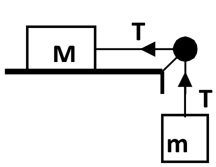
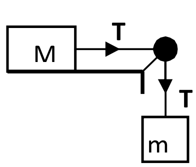
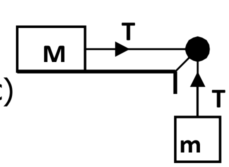
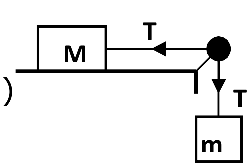
14. Which figure of the following shows **the right direction of the tension T**? (the two masses are stationary).

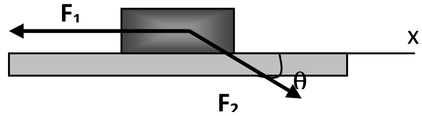
(a) 

(b) 

(c) 

(d) 

15. Two forces act on a block of mass **m= 0.5 kg** that Moves along the x-axis on a frictionless table, **F_1= 3 N** and **F_2= 1 N** directed at angle **θ=30°** as shown,
What is the acceleration of the block?



(a) – 4.3 m/s² (b) – 7.7 m/s² (c) - 5 m/s² (d) - 7 m/s²

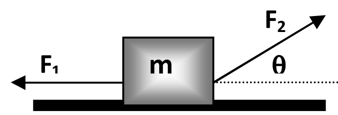
16. If **m_1= 2 kg** and **m_2= 4 kg** and the **same force is applied to both masses**, then the **ratio of their accelerations is**:

(a) $\frac{a_2}{a_1}=\frac{1}{2}$ (b) $\frac{a_2}{a_1}=2$ (c) $\frac{a_2}{a_1}=\frac{1}{4}$ (d) $\frac{a_2}{a_1}=4$

17. A force **F** applied to a body of mass **m_0** giving it an acceleration **a_0**, what is the mass of a body **x** if the same force is applied to it and accelerate it by **a_x** ?

(a) $m_x = m_0 \frac{a_x}{a_0}$ (b) $m_x = m_0 \frac{a_0}{a_x}$ (c) $m_x = \frac{a_x}{a_0}$ (d) $m_x = \frac{a_0}{a_x}$

18. In the figure, two forces acting on a box of mass **m** moving over a **frictionless** ice along the **x-axis** .
What is the **acceleration** of the box?



(a) $a_x = \frac{F_1 + F_2\cos\theta}{m}$ (b) $a_x = \frac{F_2\cos\theta - F_1}{m}$ (c) $a_x = \frac{F_2\cos\theta}{m}$ (d) $a_x = \frac{F_1 - F_2}{m}$

19. The magnitude of the **centripetal force** is

(a) $F = m\frac{v^2}{R^2}$ (b) $F = \frac{v^2}{R}$ (c) $F = m\frac{v}{R}$ (d) $F = m\frac{v^2}{R}$

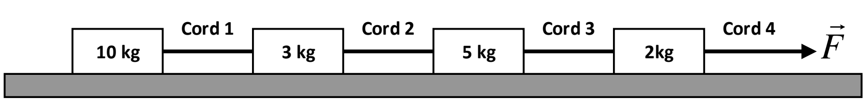
1. What is the **gravitational force** on a man of mass **m** when he is sitting in a car that accelerates at **a** ?

(a) F_g= m a (b) F_g= m (g – a) (c) F_g= m g (d) F_g= m (a – g)

20. Two forces act on a particle that moves with **constantvelocity** $\vec{v} = 3\hat{i} - 4\hat{j}$ **m/s**, one of the forces is $\vec{F}_1 = 2\hat{i} - 6\hat{j}$ **N**,what is the other force?

(a) $\vec{F}_2 = 2\hat{i} - 6\hat{j}$ (b) $\vec{F}_2 = 6\hat{i} - 10\hat{j}$ (c) $\vec{F}_2 = -2\hat{i} + 6\hat{j}$ (d) $\vec{F}_2 = -6\hat{i} + 10\hat{j}$

21. The figure shows a train of four blocks being pulled across a frictionless floor by force $\vec{F}$, what **total mass is accelerated to the right byCord 2**?

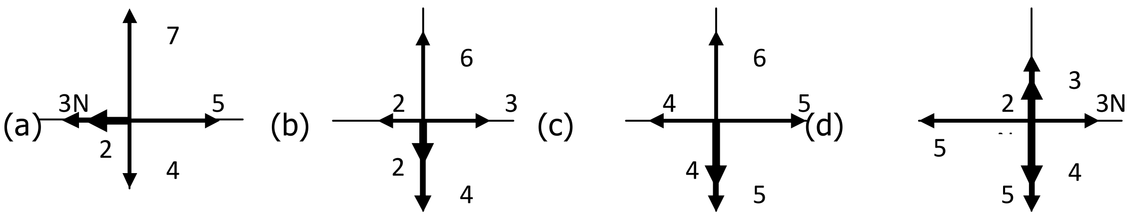


(a) 10 kg (b) 18 kg (c) 13 kg (d) 7 kg

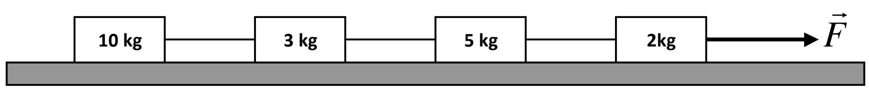
22. A particle has a **weight of 22 N** at a point where **g = 9.8 m/s^2**, what are its **mass and weight** at a point where **g = 0** ?

(a) m = 2.2 kg, W = 0
(b) m = 0, W = 2.2 N
(c) m = 0.45 kg, W = 0
(d) m = 0, W = 45 N

23. In which figure of the following the **y-component of the net force is zero**?



24. The figure shows a train of four blocks being pulled across a frictionless floor by force $\vec{F}$, what total mass is accelerated to the right by force $\vec{F}$?

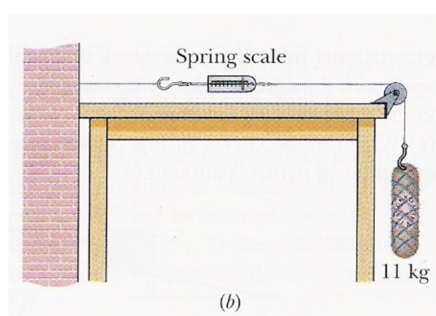


(a) 10 kg (b) 18 kg (c) 13 kg (d) 245 m/s

25. Three forces act on a particle that moves with **unchanging** velocity $\vec{v} = 2\hat{i} - 7\hat{j}$, two of the forces are $\vec{F}_1 = 2\hat{i} + 3\hat{j} - 2\hat{k}$ and $\vec{F}_2 = -5\hat{i} + 8\hat{j} - 2\hat{k}$. what is the **third force** ?

(a) $3\hat{i} - 11\hat{j} + 4\hat{k}$ (b) $7\hat{i} - 5\hat{j}$ (c) $-3\hat{i} + 11\hat{j} - 4\hat{k}$ (d) $-7\hat{i} + 5\hat{j}$

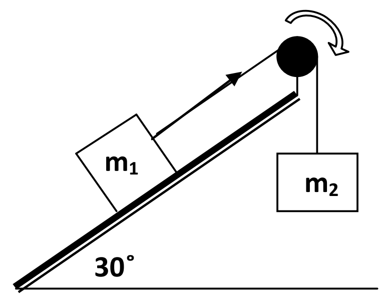
26. An **11 kg** object is supported by a cord that Runs around a pulley and to a scale. The opposite end of the scale is attached by a cord to a wall.
What is the reading on the scale?



(a) 11 N (b) 9.8 N (c) 107.8 N (d) 215.6 N

27. A block of mass $\mathbf{m_1=3.7}$ **kg** on frictionless inclined plane of angle **30°** is connected by a cord over a massless frictionless pulley to a second block of mass $\mathbf{m_2=2.3}$ **kg** hanging vertically **as shown**.

If the magnitude of the **acceleration** of each block is $\mathbf{0.735\ m/s^2}$, what is the **tension in the cord** ?



(a) 36.3 N (b) 22.5 N (c) 20.8 N (d) 18.1 N

28. In question 27, what is the **normal force** acting on the block $\mathbf{m_1}$?

(a) $N=F_g - m_1 g\cos\theta$ (b) $N=F_g\cos\theta$ (c) $N=F_g + m_1 g\cos\theta$ (d) $N=F_g$

29. In question 27, if the cord is cut what is the **acceleration** of mass $\mathbf{m_2}$?

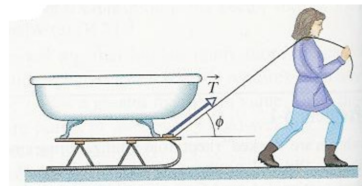
(a) $a = -4.9\ m/s^2$ (b) $a = -9.8\ m/s^2$ (c) $a = -0.735\ m/s^2$ (d) a = zero

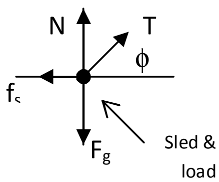
30. If the **1 kg** body has an **acceleration of 2 m/s²** at an angle of **20°** above the positive direction of the x-axis. What is the **net force** in unit vctor notation?

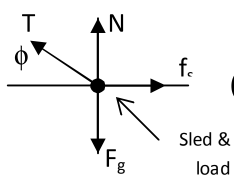
(a) $\vec{F} = 0.34\hat{i} + 0.94\hat{j}$ (b) $\vec{F} = 1.88\hat{i} + 0.68\hat{j}$ (c) $\vec{F} = 0.68\hat{i} + 1.88\hat{j}$ (d) $\vec{F} = 0.94\hat{i} + 0.34\hat{j}$

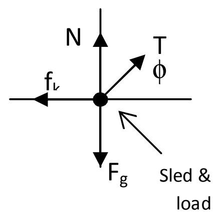
Chapter 6: FORCE AND MOTIN II

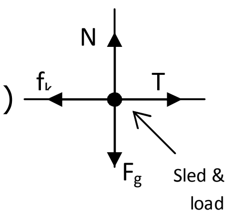
1. In the figure a woman **pulls** a loaded sled of mass **m** along a horizontal surface at **constant velocity**. The coefficient of kinetic friction between the runners and the snow is μ_k .
Which figure shows the correct **free body diagram** for the sled and load?



(a)


(b)


(c)


(d)


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2. In question 2, The **equation of the forces acting on the load and sled** (from Newton's second law) is:

(a) $\vec{T}+\vec{N}+\vec{F}_g+\vec{f}_k=0$

(b) $\vec{T}+\vec{N}+\vec{F}_g+\vec{f}_s=0$

(c) $\vec{T}+\vec{N}+\vec{F}_g+\vec{f}_k=m\vec{a}$

(d) $\vec{T}+\vec{N}+\vec{F}_g+\vec{f}_s=m\vec{a}$

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3. A **12 N** horizontal force pushes a block of **weight 5 N** to make it move with **constant speed**, the value of the **coefficient of friction** μ_k is:

(a) 2.4 (b) 0.24 (c) 4.1 (d) 0.41

---

4. A car has a **weight of 1.1 N** slides on the road with acceleration **a=1.24 m/s²**, **what is the force of friction** between the car and the road?

(a) - 1.13 N (b) - 11 N (c) - 1.4 N (d) - 0.14 N

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5. A **12 N** horizontal force pushes a block of **weight 5 N** to make it move with **constant speed**, the value of the **coefficient of friction** μ_k is:

(a) 2.4 (b) 0.24 (c) 4.1 (d) 0.41

6. A block lies on a floor.If the maximum value $f_{x,max}$ of the static frictional force on the block is **10 N**, what is the magnitude of the **frictional force** if the magnitude of the horizontally applied force is **8 N**?

(a) 10 N (b) 8 N (c) 2 N (d) 18 N

7. A **470 N** horizontal force pushes a block of **mass 79 kg** to make it move with **constant speed**, what is the value of the **coefficient of friction** μ_k ?

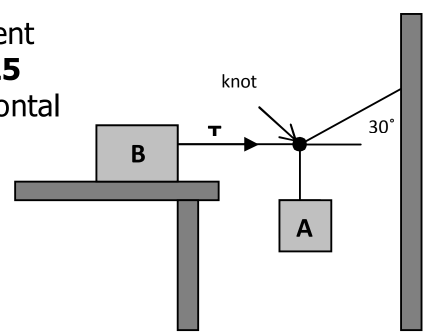
(a) 0.61 (b) 6 (c) 1.6 (d) 0.06

8. A block lies on a floor.If the maximum value $f_{x,max}$ of the static frictional force on the block is **10 N**, what is the magnitude of the frictional force if the magnitude of the horizontally applied force is **12 N**?

(a) 10 N (b) 12 N (c) 2 N (d) 22 N

9. In the figure, **block B weighs 711 N**. The coefficient of static friction between the block and the table is **0.25** assume that the cord between **B** and the **knot** is horizontal

What is the magnitude of the tension T?



(a) 205.2 N (b) 355.5 N (c) 820.1 N (d) 1422 N

10. **In question 9**, the weight of block **A** is :

(a) T cos 30 (b) T sin 30 (c) F_g – T cos 30 (d) F_g – T sin 30