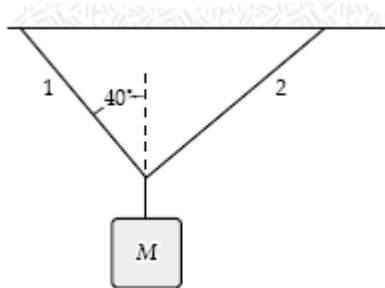
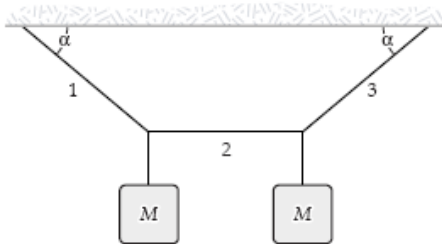


AP Newton's Laws of Motion w/o Drag Forces

- ___ 1. In the figure, if the tension in string 1 is 34 N and the tension in string 2 is 24 N, what is the mass of the object shown?

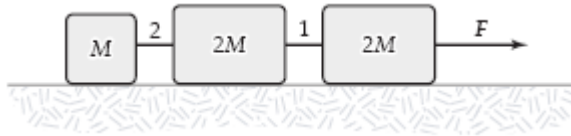


- a. 7.3 kg
 - b. 5.5 kg
 - c. 1.8 kg
 - d. 3.7 kg
 - e. 4.5 kg
- ___ 2. If $\alpha = 40^\circ$ and the tension in string 2 is 30 N, determine M .

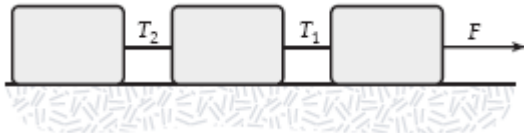


- a. 3.4 kg
 - b. 3.6 kg
 - c. 2.6 kg
 - d. 4.9 kg
 - e. 7.5 kg
- ___ 3. A 5.0-kg mass is attached to the ceiling of an elevator by a rope whose mass is negligible. What force does the mass exert on the rope when the elevator has an acceleration of 4.0 m/s^2 upward?
- a. 69 N downward
 - b. 29 N downward
 - c. 49 N downward
 - d. 20 N downward
 - e. 19 N downward
- ___ 4. The apparent weight of a fish in an elevator is greatest when the elevator
- a. moves downward at constant velocity.
 - b. moves upward at constant velocity.
 - c. accelerates downward.
 - d. accelerates upward.
 - e. is not moving.

5. The horizontal surface on which the objects slide is frictionless. If $M = 2.0$ kg, the tension in string 1 is 12 N. Determine F .



- 25 N
 - 20 N
 - 30 N
 - 35 N
 - 40 N
6. Three boxes slide on a frictionless horizontal surface when pulled by a force of magnitude F . When we compare the tensions T_1 and T_2 with the force F , we find that



- $T_1 = T_2 = F$.
 - $T_1 = F > T_2$.
 - $F > T_1 = T_2$.
 - $F > T_1 > T_2$.
 - $F - T_1 < T_1 - T_2$.
7. A 30-kg child rides on a circus Ferris wheel that takes her around a vertical circular path with a radius of 20 m every 22 s. What is the magnitude of the resultant force on the child at the highest point on this trajectory?
- 49 N
 - 0.29 kN
 - 0.34 kN
 - 0.25 kN
 - 0.76 kN
8. A stunt pilot weighing 0.70 kN performs a vertical circular dive of radius 0.80 km. At the bottom of the dive, the pilot has a speed of 0.20 km/s which at that instant is not changing. What force does the plane exert on the pilot?
- 3.6 kN up
 - 4.3 kN up
 - 2.9 kN down
 - 2.9 kN up
 - 5.8 kN down
9. A race car traveling at 100 m/s enters an unbanked turn of 400 m radius. The coefficient of (static) friction between the tires and the track is 1.1. The track has both an inner and an outer wall. Which statement is correct?
- The race car will crash into the outer wall.
 - The race car will crash into the inner wall.
 - The car will stay in the center of the track.
 - The car will stay in the center of the track if the driver speeds up.
 - The car would stay in the center of the track if the radius were reduced to 200 m.

**AP Newton's Laws of Motion w/o Drag Forces
Answer Section**

MULTIPLE CHOICE

- | | |
|-----------|--------|
| 1. ANS: D | PTS: 1 |
| 2. ANS: C | PTS: 1 |
| 3. ANS: A | PTS: 1 |
| 4. ANS: D | PTS: 1 |
| 5. ANS: B | PTS: 1 |
| 6. ANS: D | PTS: 1 |
| 7. ANS: A | PTS: 1 |
| 8. ANS: B | PTS: 1 |
| 9. ANS: A | PTS: 1 |