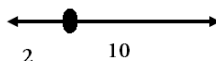


Free-body Diagrams

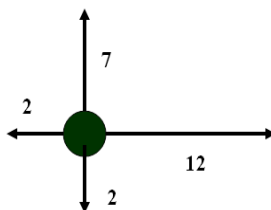
A series of free-body diagrams are presented below. Use the free-body diagram to answer the questions accompanying the diagrams. **Always show your work!**

Find the acceleration for a 2 kg mass with the following external forces acting upon it.

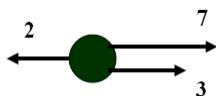
1. $a = \underline{\hspace{2cm}}$ m/sec²



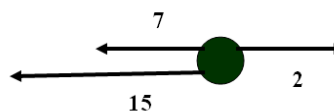
2. $a = x \underline{\hspace{2cm}} + y \underline{\hspace{2cm}}$ m/sec²



3. $a = x \underline{\hspace{2cm}} + y \underline{\hspace{2cm}}$ m/sec²

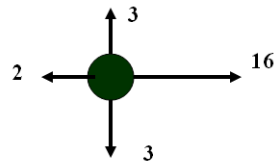


4. The acceleration of a mass is 10 m/sec² to the left,
 what is its mass? $m = \underline{\hspace{2cm}}$ kg



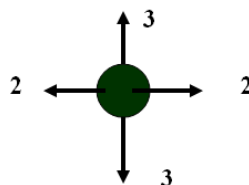
5. If $m = 7 \text{ kg}$, what is the acceleration? (Include direction)

$$a = \underline{\hspace{2cm}} \text{ m/sec}^2$$



6. If $m = 5 \text{ kg}$, what is the acceleration? (Include direction)

$$a = \underline{\hspace{2cm}} \text{ m/sec}^2$$



7. Sketch the free-body diagram for a mass that has a force of 10 N to the right, 7 N up, 3 N down, and 4 N to the left. What is the net external force on that mass? If the mass is 2 kg, find the acceleration.

$$F = \underline{\hspace{2cm}} \text{ N}$$

$$a = \underline{\hspace{2cm}} \text{ m/sec}^2$$