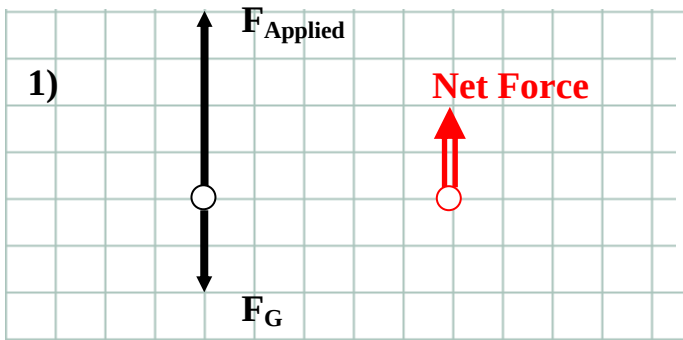
**PHS 100: Practice Finding Net Force**

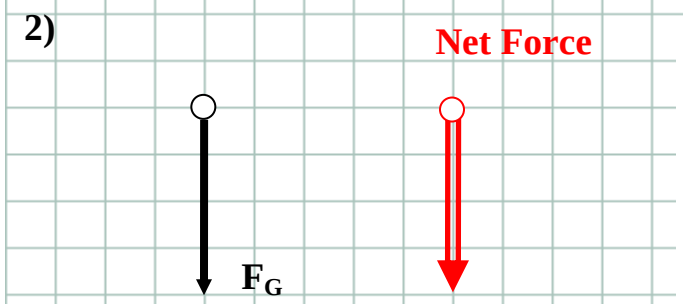
Draw an arrow to represent the Net Force acting for each case. Also describe a situation for which the force diagram is applicable. The first one has been done for you.

1)




The net force from a big force up and a small force down is a small force up. This force diagram would apply to someone throwing a ball up- it would correspond to the time BEFORE the person released the ball.

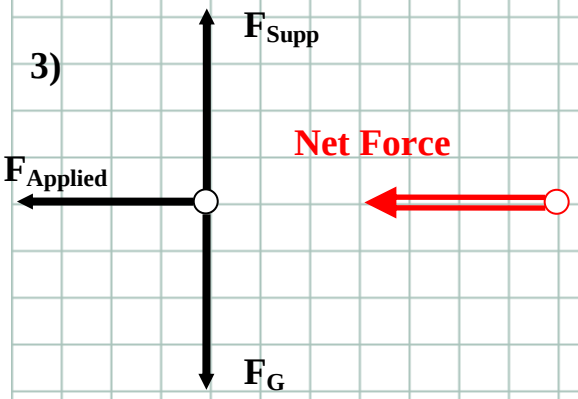
2)




Since there is only 1 force, the net force is simply equal in size AND direction to that force.

This could represent a ball in free fall. Is the force diagram representing the ball different when it is moving upward than when it moves downward?

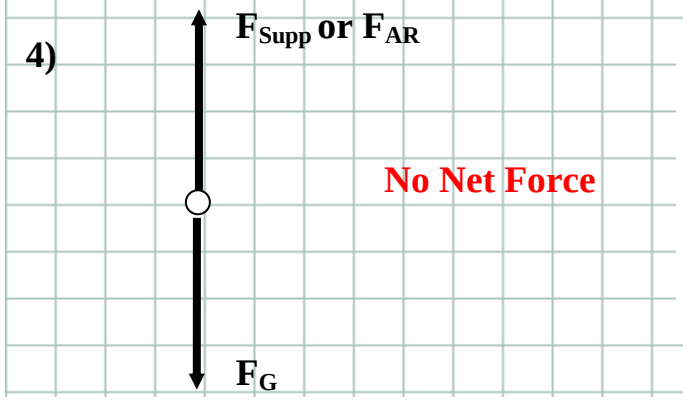
3)




Note that there is no net force in the vertical direction.

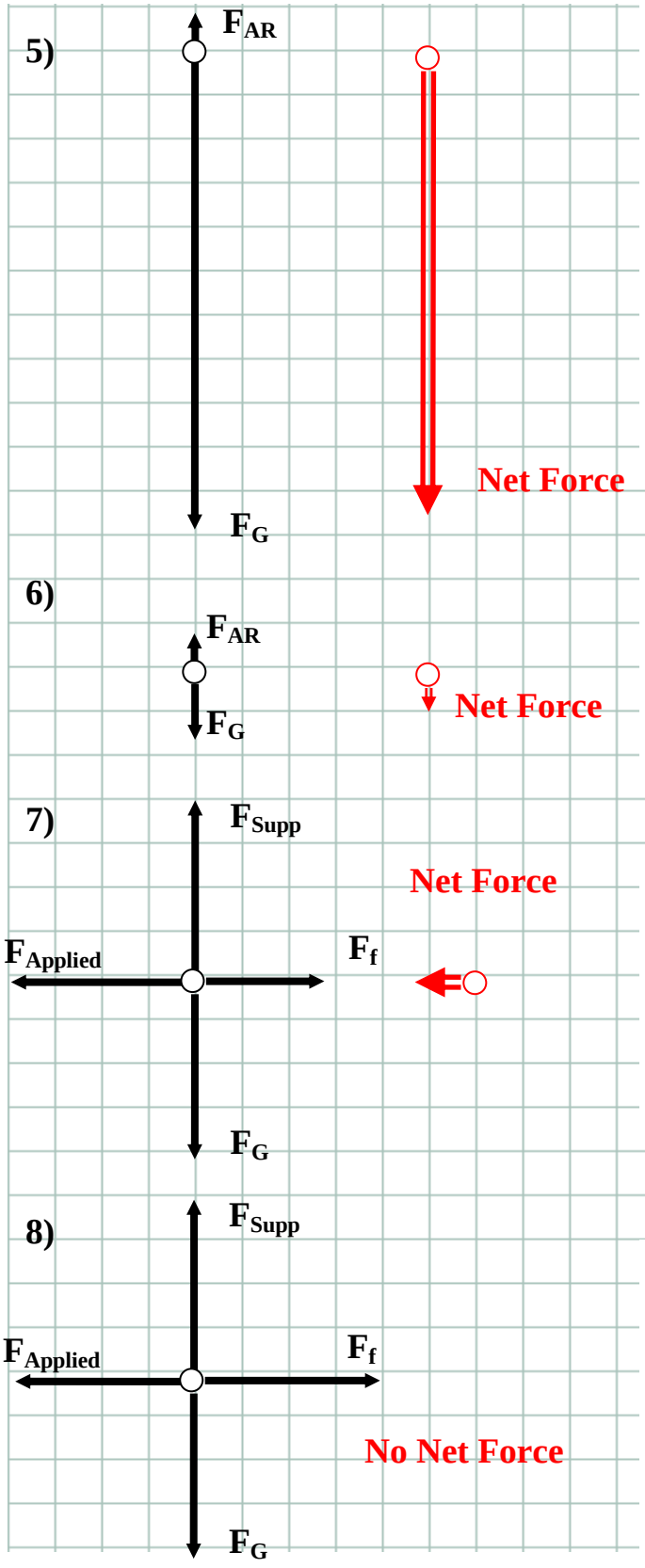
This could represent the case of someone hitting a hockey puck on frictionless ice. This would apply to the time WHILE the stick is in contact with the puck. What would the force diagram look like AFTER the puck leaves the stick?

4)




There is no net force in the vertical direction, and no forces in the horizontal direction.

This could represent the case of a book sitting on a table. Could this diagram represent the case of a falling object? If so, what is the acceleration of this object?




The downward force is much bigger, so the net force will be in the downward direction.

This could represent the case of a book after it has fallen 25 feet (and is still falling). The book is going fast enough that air resistance has started to become significant, but the air resistance force is still much less than the force of gravity.

Note that the net force is still nearly as large as it would have been if no air resistance had been present.

This could represent a feather or piece of paper, very shortly after release. While the air resistance force is similar in size to that in problem 5, it has a more significant impact in reducing the net force. The net force is only half as large as it would have been if there was no air resistance.

There is no net force in the vertical direction. The horizontal force to the left is bigger than the one to the right, so the net force will be to the left.

This could represent the case of a book on a table being pushed to the left. Is the book accelerating?

There is no net force in the vertical direction or in the horizontal direction.

This could represent the case of a book on a table being pushed to the left. Is the book accelerating?

Note that there is no way to determine from this force diagram whether the book is stationary or moving.