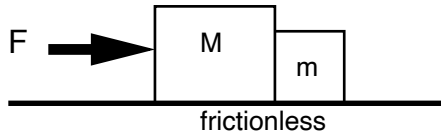


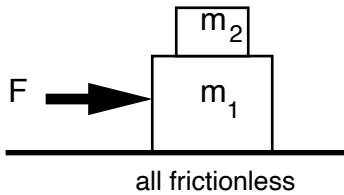
## Free Body Diagrams II (Systems)

For each of the following questions, draw the free body diagram for each mass in the system. Then write out Newton's Second Law for each component of each mass in the system. Lastly, write out Newton's Second Law for the system as a whole. Unless otherwise stated, assume the accelerations are to the right.

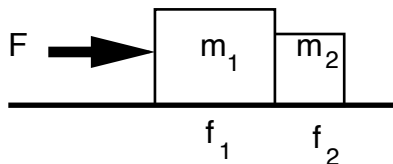
1.



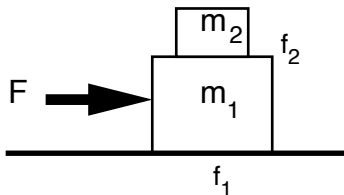
2.



3.

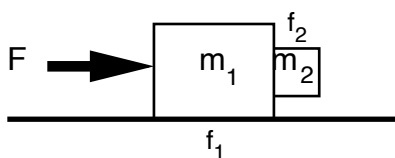
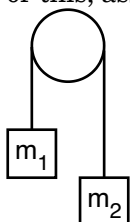


4.

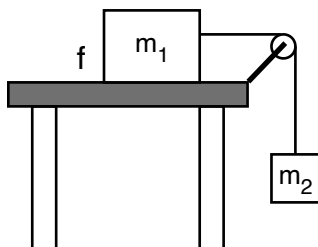


**Free Body Diagrams II (Systems)**

5.

6. For this, assume  $m_1$  is accelerating down.

7.

8. For this, assume the block  $M$  is accelerating down the ramp.