Unit 4 - Activity 8

2D Force diagrams

For each of the situations observed during the demonstration, do the following:

1. Draw and label a proper force diagram in the space provided. Assume the hanging mass or the car to be your system.
2. Determine the sum of the forces on the system based on the forces labeled in your force diagram. (Include direction.)
3. Describe the type of motion the object will have. Be as specific as possible in your description of the motion.

1. The block is suspended vertically by a single string.

|  |  |
| --- | --- |
| a. |  |
| b.  𝛴 Fx =  𝛴 Fy = | c. The block will… |
| d. Determine the magnitude of each force – explain how you determined each value. | |

2. The block is now suspended by a second string as well, and the second string is horizontally oriented.

|  |  |
| --- | --- |
| a. |  |
| b.  𝛴 Fx =  𝛴 Fy = | c. The block will… |
| d. Determine the magnitude of each force – explain how you determined each value. | |

3. A car is resting on a level track.

|  |  |
| --- | --- |
| a. |  |
| b.  𝛴 Fx =  𝛴 Fy = | c. The car will… |
| d. Determine the magnitude of each force – explain how you determined each value. | |

4. A car is resting on an inclined track, with a string attached to the back, acting parallel to the track.

|  |  |
| --- | --- |
| a. |  |
| b.  𝛴 Fx =  𝛴 Fy = | c. The car will… |
| d. Determine the magnitude of each force – explain how you determined each value. | |