

Lab 4-2: Tension in a String

Conclusion:

1. In all of these trials, what must be the net force on the mass? Support your answer.

2. What was the weight of the suspended mass?

3. In all of these trials, what must be true about the vertical components of the tensions? Support your answer.

4. In all of these trials, what must be true about the horizontal components of the tensions? Support your answer.

5. For each trial, find the components of the tensions in both strings. Show an example of your calculations here, and record all your results in the table.

| | Tension T_1 | | Tension T_2 | |
|--------------|-----------------------------|---------------------------|-----------------------------|---------------------------|
| <i>Angle</i> | <i>Horizontal Component</i> | <i>Vertical Component</i> | <i>Horizontal Component</i> | <i>Vertical Component</i> |
| 90° | | | | |
| 60° | | | | |
| 45° | | | | |
| 30° | | | | |

6. How do your calculations compare to your answers to questions 3 and 4?

7. If you hang some wet clothes on a clothesline, why must the clothesline sag? Could it ever be perfectly horizontal?