

## Acme Scale's Mathematical Analysis of Marist Corp. and Immaculata Corp. Springs

**The Problem:** The cost of the springs we presently use in our mass scales have doubled. We have identified two companies that sell a comparable spring at a substantially lower price. The **Marist Spring Corporation** spring is **22 cm** in length and the spring from the **Immaculata Spring Corporation** has a length of **4 cm**. We have decided to evaluate the quality of these springs based on the criteria below. We will pick the spring that best meets the criteria below.

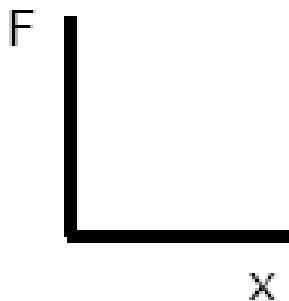
The following objectives need to be met before we decide which spring to purchase.

### Purpose:

Use plotting software to:

- a) determine the mathematical relationship between force and stretch for both springs.
- b) calculate the spring constant of each spring using the slope of an F vs. x plot (**NOTE TO STUDENT**  $k=F/x$  - the slope of line = spring constant)
- c) identify the spring that comes closest to exhibiting the properties of an ideal spring

**(NOTE TO STUDENT  $x = \text{stretch}$ )**



**Tips on the Introduction:** Be sure to mention the fictitious problem presented at the top of the page. Define all the important terms mentioned in the purpose.

Notes from teacher discussion:

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