

Lab 5 Worksheet - Evaluating a Model (24 Points)

1. Describe how you carried out your experiment. You can include a picture or diagram of your setup if that makes it easier to describe.

5 Points - BOTH of the following are true: (1) there is a written and/or pictorial description of the experimental setup, (2) the way the experiment was setup and performed is clear and understandable.

2.5 Points - Only ONE of the following is true: (1) there is a written and/or pictorial description of the experimental setup, (2) the way the experiment was setup and performed is clear and understandable.

0 Points - NEITHER of the following is true: (1) there is a written and/or pictorial description of the experimental setup, (2) the way the experiment was setup and performed is clear and understandable.

2. Include a screenshot of your force vs displacement graph. Be sure that your graph is professional in appearance and contains appropriate labels and units. It should also show the trend line and equation of the line.

5 Points - ALL of the following are true: (1) a professional looking screenshot is included (zoomed in appropriately, everything is labeled, appropriate units are included), (2) the equation of the line is present.

2.5 Points - Only ONE of the following is true: (1) a professional looking screenshot is included (zoomed in appropriately, everything is labeled, appropriate units are included), (2) the equation of the line is present.

0 Points - Neither of the following is true: (1) a professional looking screenshot is included (zoomed in appropriately, everything is labeled, appropriate units are included), (2) the equation of the line is present.

3. What is the spring constant of your spring as determined from a curve fit (trend line)?

4 Points - The reported spring constant is accurate (within 20% of the actual spring constant) AND appropriate units are included.

3 Points - The reported spring constant is accurate (within 20% of the actual spring constant) BUT appropriate units are not included.

2 Points - The reported spring constant is NOT accurate (it is greater or less than 20% of the actual spring constant) BUT appropriate units are included.

1 Point - The reported spring constant is NOT accurate (it is greater or less than 20% of the actual spring constant) AND appropriate units are not included.

0 Points - The spring constant is not reported.

4. What criteria are you using to evaluate the validity of Hooke's law?

5 Points - Legitimate criteria are stated.

2.5 Points - Criteria are stated but they are not clear or do not make sense.

0 Points - No criteria are stated.

5. Using your collected data and graph of force versus displacement, evaluate the validity of Hooke's Law. (Is it valid, invalid, mostly valid?) This should be a short discussion based on the criteria you came up with to evaluate Hooke's Law.

5 Points - ALL of the following are true: (1) There is a sentence describing the validity of Hooke's Law (that it is valid, invalid, mostly valid, etc.), (2) There is a discussion evaluating Hooke's Law that is based on the collected data and the graph of force versus displacement.

2.5 Points - Only ONE of the following is true: (1) There is a sentence describing the validity of Hooke's Law (that it is valid, invalid, mostly valid, etc.), (2) There is a discussion evaluating Hooke's Law that is based on the collected data and the graph of force versus displacement.

0 Points - NEITHER of the following is true: (1) There is a sentence describing the validity of Hooke's Law (that it is valid, invalid, mostly valid, etc.), (2) There is a discussion evaluating Hooke's Law that is based on the collected data and the graph of force versus displacement.