

Criteria Number	Content Criterion	Very Good	Fair	Poor
1	Did the writer have a clear, concise description of the problems being solved?	The problems being solved were included seamlessly within the write-up of the solution.	There was some mention of the problems being solved within the write-up, but they were organized poorly or were worded in a way that made them difficult to understand for the reader.	There was no attempt made at describing the problems being solved within the paper.
2	Did the writer use professional judgment on how much detail to provide in writing the solution to the physics problem?	Detail in the problem solving process was ample and not overly wordy.	There was a minor lack of detail in portions of the write up to the solution, or there were minor places where the problem solving process was too wordy or contained unnecessary information.	There was a major lack of detail in the explanation of the write up, or the problem solving process contained far too much information or was overly wordy.
3	Did the writer convey a complete understanding of the relationships and meanings in the symbols of the equations used in solving the problem?	Writer clearly presented the meaning of the symbols in each equation, including important relationships between them.	Some symbols were not clearly explained, and/or some relationships between them were omitted. Statements may not have been worded clearly due to somewhat poor writing style.	The reader could not understand what many of the symbols represented in the equations, nor could an understanding of how they were related be reached. The writing style may have been very difficult to follow.
4	Did the writer completely explain tricky parts of the calculations, clearly explaining each mathematical manipulation carried out that wasn't algebraically trivial?	Calculations and mathematical manipulations were explained thoroughly so that the reader could follow each progression in the solution.	Tricky mathematical manipulations were not explained clearly so that the reader's understanding of the mathematical process was somewhat lacking. Most of the manipulations were explained thoroughly, but a few were either omitted or unclear.	Mathematical steps taken in reaching the solution were omitted entirely, or so incomplete that the reader could largely not follow the progressions made in reaching the solution.
5	Did the writer present data in a clear, efficient manner, explaining the relevance of the data to the problem solving process?	Data were clearly presented in a meaningful way that showed relevance of the physical quantities to one another. Any tables or graphs had clear labels, giving the reader a complete understanding of what quantities were involved and how they were related.	Data was wholly included, but arranged in such a way that it was not completely clear to the reader what quantities were involved, or how they were related to one another. For the most part it is obvious to the reader which quantities are being discussed, but properly labeled units or axes may have been omitted.	Data was arranged in such a way that the reader could not understand what quantities were being displayed, how they were related to one another, and in what units of measurement they were made.
6	Did the writer analyze the data, explaining how it fit in to the theory (or did not fit), and also give a reason for any anomalous data that had occurred?	Data was analyzed to show how it fit in with the theory or predicted model and is easily understandable to the reader. Plausible reasons were given for any anomalous data that had occurred.	The data analysis generally described how the particular findings fit into the predicted model or theory, but were lacking in an explanation of anomalous data or did not completely explain how the collected data differed from the expected model.	There was either no detailed analysis of the data presented, or the analysis was so lacking that it did not present any relevance to the theory behind the experiment or how it fit into a predicted model.
7	Did the writer explain what was learned or what insights were gained in solving this problem?	There was a complete statement of what was learned in answering the posed question, and why it was educational or important.	Writer mentioned a physics or mathematical concept learned, but did not clearly describe it.	The writer does not describe what was learned, or describes overly general things, such as, "Learned to work in a group."
8	Did the writer convey an understanding of what the final results tell about the physics?	Writer clearly explained what the final results tell about the physics of the problem and described what is physically interesting or unique about the solution to the problem.	An attempt is made to relate the mathematical manipulations to the physical concepts, but the physical situation is weakly related to these results.	The writer made no attempt at describing how the final solution related to the physical concepts.
9	Was the writer able to connect the solution to similar work done by others, tying together how the writer's efforts support and make contributions to the field?	The writer explained how their work was connected to other endeavors in the field, and how it contributed to the total scientific process. There was a good comparison and contrast between their own work and the work of other, similar physical problems	There was an attempt made at comparing and contrasting the work done by the writer to others, but it was either lacking or not clearly expressed such that the reader had difficulty in understanding how this particular endeavor fit in with others' work.	There was no attempt made at connecting the writer's work to others; there was no comparison made to the work of others.
10	Were the mathematical steps included within the structuring of the paper, and did the writer technically proficient spelling and grammar?	Equations were part of the grammatical structure of the sentence. Words were spelled correctly and punctuation was used properly.	Paper contains grammar and spelling errors, but maintains the status of equations being a part of the sentence structuring.	Language used was very unclear and sentence structure was not in any way included along with mathematical procedures.
11	Was there a graphical representation of the problem?	The author included a diagram or drawing of the involved physical objects that included clearly labeled any involved variables and constants.	A graphical representation of the problem was included in the paper, but any involved quantities were not clearly labeled.	Author did not include a diagram at all, or any included diagram was disorganized and untidy to the point that it was neither understandable nor helpful.
12	Were the mathematical manipulations correct and physical reasoning valid?	There were no mathematical mistakes in the paper and all physical reasoning was logical and valid.	There were minor errors in the physical arguments or the mathematical processes, but the reader could understand the mistakes and fill in the gaps themselves.	The paper contained many incorrect mathematical manipulations and invalid physical arguments. The reader could not understand the writer's arguments because they were so incorrect.