

Mathematics Project Description:

In the Mathematics Project, contestants can choose between a statistics/applied math project, or a pure math project. The statistics/applied math project requires contestants to research a problem/theory/trend of their choice, and make use of analytical skills, numbers, statistical methods, and/or other mathematical models to present a solution to the student's chosen research topic. The pure math project should involve solving an abstract problem with no real applications, or using proofs to prove something the contestant wishes to prove. The criteria and detailed point breakdown for the Mathematics project can be seen below on this page. The contestant has the option to submit their report through a video, a picture, or a PDF document. The method the contestant chooses to submit will not impact how it is judged. The contestant only has to choose one method to submit, but can choose more if they want to.

Where to submit your project:

You can submit your video/picture/PDF to our email, contact@tsoaonline.org, if the file is less than 25 MB. If the file is greater than 25 MB, share it with our email account via Google Drive.

Mathematics Rubric

Criteria:	1st Judge	2nd Judge	Total
Abstract	__/15	__/15	__/30
Research	__/10	__/10	__/20
Explanation of Data/Theory/Results	__/15	__/15	__/30
Accuracy	__/15	__/15	__/30
Documentation	__/10	__/10	__/20
Difficulty	__/15	__/15	__/30
Conclusion	__/10	__/10	__/20
Tiebreaker: Communication	__/5	__/5	__/10
Overall Total:	__/90	__/90	__/180

	+ —/5 (Only Add For Tiebreaker)	+ —/5 (Only Add For Tiebreaker)	+ —/10 (Only Add For Tiebreaker)
--	------------------------------------	------------------------------------	-------------------------------------

Point Breakdown:

Point Value (0-15)	<u>Excellent (11-15)</u>	Average (6-10)	Poor (0-5)
Abstract	<p>Excellent summary of project and results, and includes a concise problem statement (or if the contestant used proofs, what they proved). The length is also 400 words or less.</p>	<p>Summary of project and results are present, and includes a problem statement. The length is also 400 words or less.</p>	<p>Poor summary of project and results, and/or does not include a problem statement, and/or length is not 400 words or less.</p> <p><u>OR</u></p> <p>No abstract is present.</p>
Explanation of Data/Theory	<p>An explanation of the data collected is thoroughly explained in a concise manner (for projects involving statistics/applied math).</p> <p><u>OR</u></p> <p>An explanation of the theory is thoroughly explained in a concise manner (for projects involving proofs/pure math).</p>	<p>An explanation of the data collected is present but is not exceptional (for projects involving statistics/applied math).</p> <p><u>OR</u></p> <p>An explanation of the theory is present but is not exceptional (for projects involving proofs/pure math).</p>	<p>An explanation of the data collected is poorly written (for projects involving statistics/applied math).</p> <p><u>OR</u></p> <p>An explanation of the theory is poorly written (for projects involving proofs/pure math).</p> <p><u>OR</u></p> <p>No explanation of Data or Theory is present.</p>
Accuracy	The	The	The work shown in

	<p>calculations/proofs shown are accurate. Additionally, all calculations/proofs needed to solve the problem are present.</p>	<p>calculations/proofs shown are mostly accurate.</p> <p><u>OR</u></p> <p>Only some of the calculations/proofs needed to solve the problem are present, but those that are present are mostly, if not all, accurate.</p>	<p>which calculations/proofs are done are nearly never accurate.</p> <p><u>OR</u></p> <p>Almost all calculations/proofs needed to solve the problem are not present.</p> <p><u>OR</u></p> <p>All calculations/proofs are incorrect, or not present.</p>
Difficulty	<p>The problem solved (which can include proofs) is very difficult in relation to high school standards.</p>	<p>The problem solved is somewhat difficult in relation to high school standards.</p>	<p>The problem solved is not difficult in relation to high school standards.</p> <p><u>OR</u></p> <p>No problem is solved.</p>

<u>Point Value (0-10)</u>	<u>Excellent (8-10)</u>	<u>Average (4-7)</u>	<u>Poor (0-3)</u>
Research	<p>Explains each aspect used in the project that was researched and implemented (e.g., for applied math projects, the contestant could show where the data came from, and for pure projects, the contestant could</p>	<p>Some aspects used in the project are explained. Some sources are cited.</p>	<p>Little to no aspects used in the project are explained. No sources are cited.</p> <p><u>OR</u></p> <p>No research section is present.</p>

	make use of lemmas). All sources used to formulate the project are cited.		
Documentation	Well-organized notes (notes can include work, calculations, proofs, etc.) and steps in solving the stated problem. The documentation has a logical flow.	Notes are somewhat organized. Certain parts are confusing and hard to understand, but overall, the documentation has a logical flow to it.	Notes have little to no organization. Most steps are hard to understand and place into a logical order. OR No documentation/notes are present.
Conclusion	The conclusion summarizes the findings of the project. It should include a concise problem statement (or if the contestant used proofs, what they proved), and a superb summary of how the problem was solved.	A conclusion is present, and summarizes the findings of the project. A problem statement is present, and a summary of how the problem was solved is present.	The conclusion does a subpar job at summarizing the findings of the project, detailing the problem statement, and detailing how the problem was solved. OR No conclusion is present.

<u>Point Value (0-5)</u>	<u>Excellent (4-5)</u>	<u>Average (2-3)</u>	<u>Poor (0-1)</u>
Communication (Tiebreaker)	The project demonstrates a high level of professionalism in its presentation.	The project is presented in a somewhat professional manner.	The project is not presented in a professional manner.

For projects in which a certain criteria is not present, that project will receive an automatic zero for that criteria.

If you plagiarize, you will automatically be disqualified.

If you have any additional questions/concerns regarding the TSOA Technology Project Rubric please reach out to us via email at: contact@tsoaonline.org