MIT BLOSSOMS
Math and Science Video Lessons
for High School Classes

**Massachusetts
Institute of
Technology**

BLOSSOMS at Home
Pythagorean Theorem

Key Words: Pythagorean Theorem, geometry, active learning, reflective learning, constructive learning
Grade levels: 9 – 12.

Dear Student@Home!~

Hi from MIT in Cambridge, Massachusetts, USA! We have a nice little project for you to do over the next week. It requires you to look at and think about two MIT BLOSSOMS video lessons, answer questions posed within the videos, and then write a short essay addressing the new questions we pose here. Total estimated time for you: only 4 hours or less! Send me your short essay (300 words or less), I promise to read it, and send comments to you! That way you get to "meet" an MIT professor, and I get to meet a dedicated and excited high school student – You! Really great essays will get a Gold Star from us. You might want to share your essay and our communication with your teacher, and your friends as well!

If enough of you like this idea of at-home projects, we will develop other weekly projects on different topics in science, mathematics and engineering, and offer them to you on a weekly basis. Cost? Zero! Benefits to you – learning new things in STEM, not by rote memorization, but by your own active learning, discovery, refection and analysis. So, watch the two lessons shown below and then write an integrated essay in response to the four questions. Have fun! Looking forward to your emailed essay!

Dick Larson   blossoms@mit.edu
Mitsui Professor, Post-Tenure, Institute for Data, Systems, and Society
Massachusetts Institute of Technology, Cambridge, Massachusetts 02139 USA

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The Pythagorean Theorem: Geometry's Most Elegant Theorem
https://blossoms.mit.edu/videos/lessons/pythagorean_theorem_geometry_most_elegant_theorem

The Parallax Activity: Measuring the Distances to Nearby Stars
https://blossoms.mit.edu/videos/lessons/parallax_activity_measuring_distances_nearby_stars

Questions:

1. Were you surprised to learn that many people knew of and used (at least one version of) the Pythagorean Theorem prior to Pythagoras? Then why has history named the theorem after Pythagoras?

2. In the two BLOSSOMS videos, what was the most surprising application of the Pythagorean Theorem, from your point of view? Why?

3. Did you know that nearly all major mathematical formulas, algorithms and techniques were first devised not by mathematicians but by people who needed to solve a real, given problem? Can you name another mathematical result that was devised to solve a real problem? And briefly describe an illustration of its application?

4. Finally, look around your house, around your neighborhood. Can you briefly describe two applications of the Pythagorean Theorem that would apply to your house and/or neighborhood?