

# Welcome

The students of Abby Brown's Calculus C, Calculus D, Linear Algebra, and Advanced Topics classes have had the special opportunity to explore advanced mathematical concepts through a joint program with San Diego State University. Each class is taught with the rigor and discipline expected of college-level courses, with a particular emphasis on projects and presentations that are shared today. Students have extended applications of algebra, geometry, trigonometry, and calculus across a broad spectrum of topics including physics, biology, chemistry, art, sports, games, engineering, and artificial intelligence. The large variety of projects on display is the result of months of exploration and academic growth. Tonight is a celebration of everything we have learned.

## Please enjoy your visit

### A Special Thanks To:

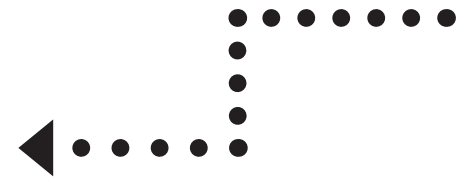
Torrey Pines High School Associated Student Body  
National Honor Society  
Administration Team  
Custodial Staff  
TPHS Teachers  
SDSU Professors  
MiraCosta College  
Family, Friends, and Community Members

Our Teacher, Ms. Abby Brown

Event Coordinators: Shannon Brownlee and Emily Zhang

Graphic Designers: Farhan Hossain and William Lutz

# MATH OPEN HOUSE



TORREY PINES HIGH SCHOOL  
TUESDAY, MAY 28th, 2019  
6:30 to 8:00 PM  
B-BUILDING

PRESENTED BY:  
CALCULUS C + D  
CALCULUS D + LINEAR ALGEBRA  
ADVANCED TOPICS IN MATH II



<b>Brian Shubat and Marvin Xia</b>	<b>Center of Mass</b> Double/Triple Integrals	<b>William Lutz and Jade Babcock-Chi</b>	<b>Apples and Bananas</b> Neural Network and Audio Recognition
<b>Stella Chung</b>	<b>Salty SONARios</b> Partial Derivatives	<b>Spencer Shroff</b>	<b>AI Tries Movie Posters</b> Deep Learning
<b>Emma Reeves and Brandon Angel</b>	<b>Tis the Season... For Math</b> Koch's Snowflake	<b>Sophia Chen</b>	<b>Flat Earth</b> Map Projections and Earth Science
<b>Daniel Ju</b>	<b>The Tech Behind 3D Printing</b> 3D Mechanics and Applications	<b>Likith Palabindela and Justin Lee</b>	<b>Producing Music Using an RNN</b> Neural Networks
<b>Bea De Oliveira and Rileigh Sullivan</b>	<b>Gimme Some Space</b> Kepler's Laws	<b>Raymond Yang</b>	<b>Morse Code Interfacing over USB</b> Computer Input
<b>Kunal Singla</b>	<b>Mini Robotic Arm</b> Micro Controllers and Sensors	<b>Michael Huo</b>	<b>Machine Learning and You: feat. Blackpink</b> Convolutional Neural Network/Video Processing
<b>Daniel Maas</b>	<b>Inverted Pendulum</b> PID Loops	<b>Shannon Brownlee</b>	<b>OpportUNITY</b> Mathematica and Unity Link Software
<b>Brian Driscoll and Kaan Ulupinar</b>	<b>The Trench Run</b> Chain Rule	<b>Brian Pacula</b>	<b>Converting Integrations</b> Jacobians
<b>McKenzie Steiner</b>	<b>Just Beat It</b> Heart Rate Calculations	<b>Adory Vo</b>	<b>Studying Spotify Songs</b> Data Science
<b>Ajay Kumar and Elliot Kim</b>	<b>Funnett Squares</b> Punnett Squares	<b>Arda Ulug and Farrah Kaiyom</b>	<b>Solving Bachelor in Paradise</b> Gale-Shapley Algorithm
<b>Maxine Sy Chu</b>	<b>Froot Hoops</b> Gamepad Interface in Mathematica	<b>Yu-Te Lee and Tommy Liu</b>	<b>Funky Fractals</b> Infinite Series
<b>Noah Garcia and Harry Weale</b>	<b>Pepper Perception</b> Area and Volume	<b>Jeff Chung and Jun Park</b>	<b>Tick-Tock</b> Pendulum
<b>Emma Richards-Smith and Helen Struble</b>	<b>Flower Functions</b> Graphing Polar Roses	<b>Michael Hao and Marc Westburg</b>	<b>Phototropism</b> Heat-seeking Particle
<b>Gabrielle Plewe and Emmie Yao</b>	<b>The Grater Gouda</b> Vector Calculus	<b>Joshua Kim and Eric Rasmussen</b>	<b>Migration of Birds to Warm Weather</b> Directional Gradient
<b>Nathaniel Chen and Matthew Jiang</b>	<b>X =</b> Cramer's Rule and Systems of Equations	<b>Rachel Doron and Gaby Nguyen</b>	<b>Electric Circuit</b> Partial Derivative
<b>Andrew Dai</b>	<b>The Ant on a Rubber Band Problem</b> Harmonic Series	<b>Sara Doron and Lindsey Ren</b>	<b>Cars</b> Tangential and Normal Vectors of Acceleration
<b>Wendy Sun and Claire Wang</b>	<b>Infinite or Finite</b> Surface Area	<b>Sumith Nalabolu and Eric Oh</b>	<b>A Complex AIM Problem</b> Matrix and Complex Rotations
<b>Rohit Ahuja</b>	<b>Constrained Optimization</b> Lagrange Multipliers	<b>Johnny Lu and Joanne Wang</b>	<b>Math Nerd Fever</b> Differential Equations
<b>Eric Whalen</b>	<b>Extremely Hard Putnam Competition</b> Euclidean Vectors	<b>Keyan Roshan</b>	<b>In a Pickle</b> Related Rates
<b>Charles Bao</b>	<b>A Solider Solution</b> Volumes Using Triple Integrals	<b>Katherine Izhikevich</b>	<b>Making Certainty With Uncertainty</b> Quantum Computing
<b>Khoa Le and George Wythes</b>	<b>Freaky Fractals</b> Fractals	<b>Edwin Lim</b>	<b>Audio Analysis in Mathematica 12</b> Audio Analysis
<b>Ryan Heo</b>	<b>CIFAR-100 object classification</b> Machine Learning	<b>Yuke Liu and Tony Liao</b>	<b>Galactic Megastructure</b> Multiple Integral
<b>Joshua Golden</b>	<b>Encrypting with Pictures</b> RSA Encryption	<b>Raman Panchal and Ryan Michalski</b>	<b>Race to Infinity</b> Direct Comparison
<b>Farhan Hossain</b>	<b>Predicting Home Values in 92130</b> Finance, Real Estate, Economy	<b>Michael Ren</b>	<b>Flexing Flux</b> Divergence Theorem
<b>Emily Zhang</b>	<b>Dynamics</b> Meteorology, Calculus	<b>Daniel Kim</b>	<b>Graph-imations</b> Animated Bar Graphs
<b>Joshua Chung</b>	<b>Sounds Different</b> Sound		