

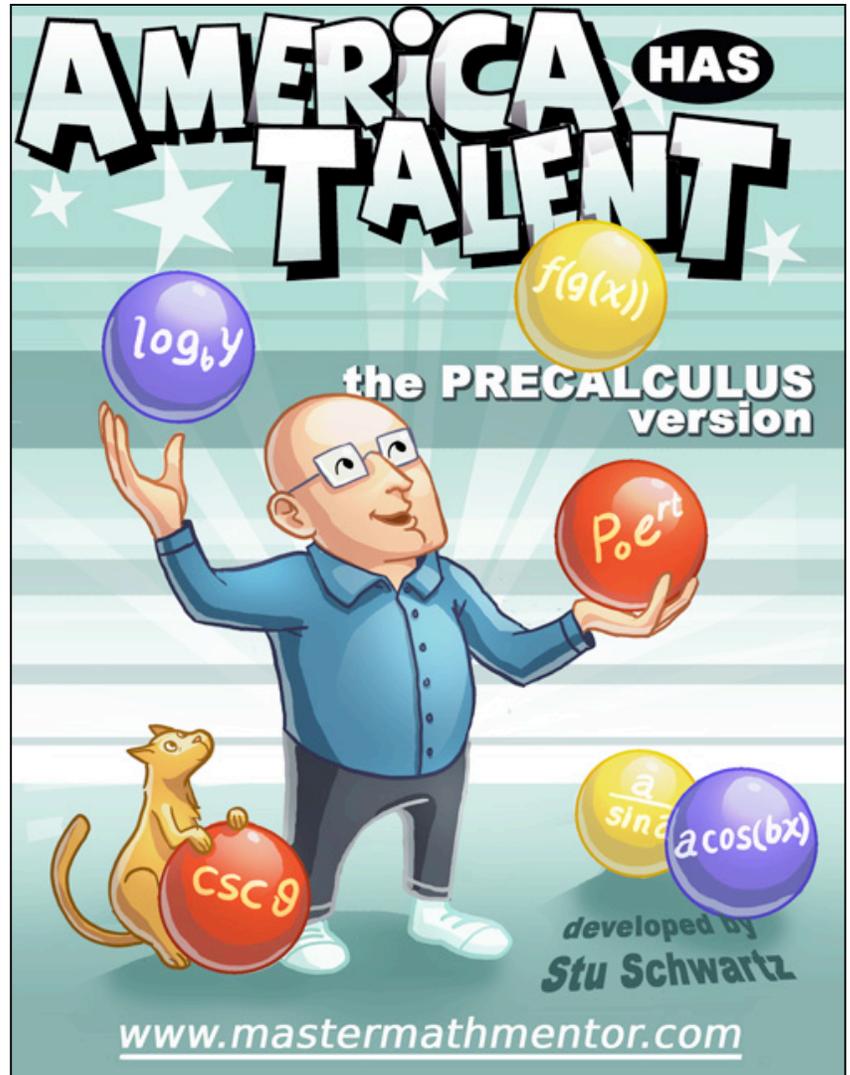
Introduction:

When I was young, I loved to play the Milton Bradley (now Hasbro) game, *Clue*. *Clue* was based on a murder being committed and the players trying to solve the mystery of who committed the murder, the weapon used, and the location it occurred.

The concept of **America Has Talent, the Precalculus Version**, is to present problems for students having taken a typical Precalculus course in a format that is different and enjoyable and loosely based on the game *Clue*. Problems are presented in the form of a talent contest among famous celebrities. Following is what is initially presented to students.

The game:

America's Got Talent has recruited 25 celebrities along with their particular talent as well as 25 prizes meant specifically for them. That means there are 15,625 possible combinations of celebrity, talent, and prize. Rather than actually run the contest, the organizers have decided to use the process of elimination to determine the winner. There are 24 sets of 3 mathematical problems that need Precalculus to solve. The organizers have decided to retain the use of experts, students having taken Precalculus, to decide the winner.



Celebrity	Set	Talent	Set	Prize	Set
1. Donald Trump		1. Making people think he/she has talent		1. Course in self-confidence	
2. Tom Brady		2. Modesty		2. Lifetime nose jobs	
3. Hillary Clinton		3. Leaping over sofas		3. Stomach Stapling	
4. Barack Obama		4. Changing his mind		4. Confinement with Trump	
5. LeBron James		5. Maternal warmth		5. Swedish supermodel	
6. Katy Perry		6. Surviving 7 books		6. Permanent laryngitis	
7. Judge Judy		7. Stupid human tricks		7. Closet organizer	
8. Jennifer Lawrence		8. Justice with attitude		8. Triwizard cup	
9. Harry Potter		9. Good with children		9. Prozac	
10. Tom Cruise		10. Good at arranging trophies		10. Chin reduction surgery	
11. Vladimir Putin		11. Casing the joint		11. Paid health insurance	
12. Ellen Degeneres		12. Saving the world one country at a time		12. A new View	
13. Prince William		13. Elocution		13. Head shaving lessons	
14. Tom Hanks		14. Coolness under fire		14. Macho lessons	
15. Bill Gates		15. Obscenities		15. Windows that work	
16. Roger Federer		16. Creating fires		16. A city who will love him/her	
17. Beyonce		17. Egomania		17. Building rights on Mars	
18. Justin Bieber		18. Making something from nothing		18. The icasket	
19. Jimmy Fallon		19. Knowing when it's over		19. Winning the South	
20. Selena Gomez		20. Making lemonade from lemons		20. Sympathy	
21. Steph Curry		21. Making headlines		21. Renaming New York in his/her name	
22. Johnny Depp		22. Adultery		22. Custom fitted floss	
23. Cameron Diaz		23. None		23. Oblivion	
24. Brad Pitt		24. Always inappropriate		24. Speedos for warmer earth weather	
25. Sam Tsui		25. Making people's day		25. Secretary of Health & Human Services	

To play the game, there are 24 sets of 3 problems (celebrity, talent, and prize). Space is provided to solve the problem. Every answer to a problem is an integer from 1 to 25. Students solve the problem and then cross out the corresponding celebrity, talent, and prize on the Entry

Form. For example, if the celebrity problem set #1 answer were 18, they would cross out Donald Trump. (see the accompanying Entry Form).

If all goes well, the students will eventually cross out every celebrity, talent, and prize, and what remains is the winner of the contest. However, if students get the same answer for two different problem sets, they have a conflict that must be resolved. For example, if the celebrity problem set # 14 answer was also 18, they would realize that Tiger Woods had already been crossed out. They would have to go back to the celebrity problems for sets #1 and #14 to see if either truly has 18 as its answer.

A process of elimination solves the mystery. If your class is big enough (24 students), you can assign each student a page (celebrity, talent, and prize). You can assign groups of students to solve several sets of problems or can have each student attempt to play the entire game. The game contains 72 problems and covers all topics in a typical Precalculus with some redundancy. A majority of problems can be solved without calculators, and when necessary, most only require scientific calculators.

There is an answer key and a solution for every problem in the game. Also at the back of the workbook, there is an index that classifies problems based on the precalculus curriculum in case you simply wish to assign problems on a stand-alone basis.

This “game” was developed in 2003 and I used it in my AP classes in 2004. My students loved it. The game was called **Calculus Clue** and is available on this website in the Calculus section, both in AB and BC versions. I used the approach of assigning several pages to teams of 2 students for as assignment and one class had so few conflicts in answers that they solved the mystery in 2 class periods. I don’t know whether it was a coincidence or not but I had the best results in the A.P. test I ever had – 50 of 59 students with 4 or higher in the AB exam.

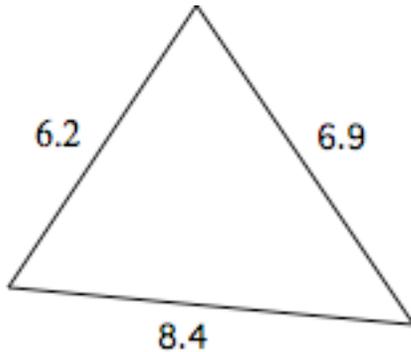
On the following pages, I show you first the Entry Form. The celebrities are ones that students anywhere in the nation should recognize. However, there is no reason why you cannot create your own using specific information from your school similar to this one:

	Celebrity	Talent	Prize
	The Principal	A truth-meter	Love
	The Nurse	Doubletalk	A new office
	The School Board	Worse possible color combinations	More Tylenol

Below, I give a typical page from **America Has Talent, the Precalculus Version**, along with the solution page. Check them out, solve them, and compare with the answers.

Precalculus AHT Problem Set # 1

Celebrity Problem: Find the area of the triangle below to the nearest integer. (scientific calculator)



The answer is: _____. Cross out that celebrity number on your entry form and write # 1 as your set.

Talent Problem: Lawyer A charges a \$1,800 retainer fee plus \$250 an hour for up to 12 hours. He then charges \$150 an hour for any hours over 12. Lawyer B charges a flat \$300 an hour. If a prospective client were trying to decide what lawyer to use, how many hours of time would be necessary for lawyer A to be cheaper than lawyer B?

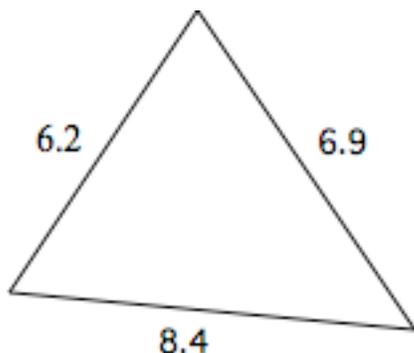
The answer is: _____. Cross out that talent number on your entry form and write # 1 as your set.

Prize Problem: A ship leaves a lighthouse on course 319° and travels 5 miles. It then makes a turn onto heading H for 8 miles and finds itself due north of the lighthouse. Find the heading H it travels. (scientific calculator)

The answer is: _____. Cross out that prize number on your entry form and write # 1 as your set.

Precalculus AHT Problem Set # 1

Celebrity Problem: Find the area of the triangle below to the nearest integer. (scientific calculator)



$$s = \frac{6.2 + 8.4 + 6.9}{2} = 10.75$$

$$A = \sqrt{10.75(10.75 - 6.2)(10.75 - 8.4)(10.75 - 6.9)} = 21.037$$

The answer is: 21. Cross out that celebrity number on your entry form and write # 1 as your set.

Talent Problem: Lawyer A charges a \$1,800 retainer fee plus \$250 an hour for up to 12 hours. He then charges \$150 an hour for any hours over 12. Lawyer B charges a flat \$300 an hour. If a prospective client were trying to decide what lawyer to use, how many hours of time would be necessary for lawyer A to be cheaper than lawyer B?

$$A = \begin{cases} 1800 + 250x, x \leq 12 \\ 4800 + 150(x - 12), x > 12 \end{cases} \quad B = 300x$$

$$4800 + 150(x - 12) = 300x$$

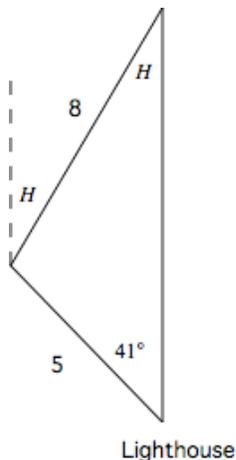
$$4800 + 150x - 1800 = 300x$$

$$150x = 3000$$

$$x = 20$$

The answer is 20. Cross out that talent number on your entry form and write # 1 as your set.

Prize Problem: A ship leaves a lighthouse on course 319° and travels 5 miles. It then makes a turn onto heading H for 8 miles and finds itself due north of the lighthouse. Find the heading H it travels. (scientific calculator)



$$\frac{5}{\sin H} = \frac{8}{\sin 41^\circ}$$

$$H = \sin^{-1}\left(\frac{5 \sin 41^\circ}{8}\right) = 24.2^\circ$$

The answer is: 24. Cross out that prize number on your entry form and write # 1 as your set.

Ordering:

America Has Talent, the Precalculus Version is available via web download and a mailed paper version. The mailed version has problem sets on one side of the page with the solutions on the other. The web download are on separate pages. Other than that, they are the same in every respect.

Cost:

The download version costs \$22.50 and is available immediately.

The mailed version costs \$30.00 plus \$3.00 shipping and will take about a week to deliver.

PO's are accepted. Send an email to sschwartz8128@gmail.com to get specific directions.

Special:

Order the Precalculus Manual solution and Precalculus Exam solutions and receive a *free downloaded copy* of **America Has Talent, the Precalculus Version**.