

Get Your Students Talking

Introducing Debate to the Math Classroom

Session 559, 3:30 – 4:30 PM

Grand Hyatt San Antonio, Lonestar Ballroom D

NCTM Annual 2017, San Antonio

Ethan Weker



@Ethan_MidPen

Ethan@mid-pen.org

Nóirín Foy



@Noirin_Foy

nfoy@lasdk8.org



Rate this presentation on the conference app!

Search “**NCTM**” in your app store or follow the link at nctm.org/confapp to download

Join in the conversation! **#NCTMannual**

@Ethan_MidPen

@Noirin_Foy



Download available presentation handouts from the online planner at nctm.org/planner

WHAT'S YOUR FAVORITE NUMBER?

19 23 26 42 28 23 24 20 22 18 27 10 69 48 1000000000 12 16 15 88 44 666 55 11 17 31 27 12

Why Debate?



Why Debate?



And more importantly, why debate in math class?

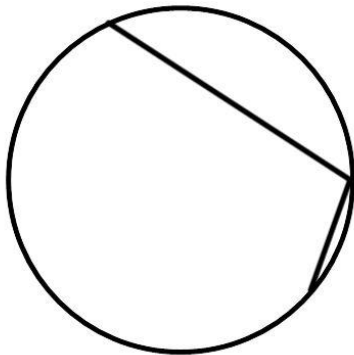
Students who are involved in discussions in which they justify solutions - especially in the face of disagreement - will gain better mathematical understanding as they work to convince their peers about differing points of view (Hatano and Inaki 1991).

-NCTM Principles and Standards for School Mathematics

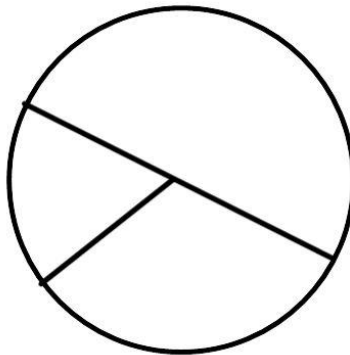


Which One Doesn't Belong?

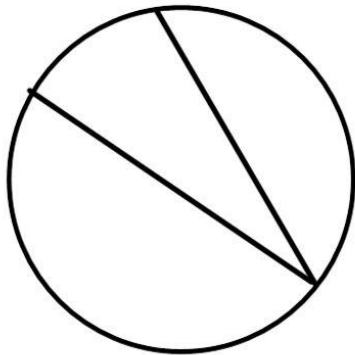
A



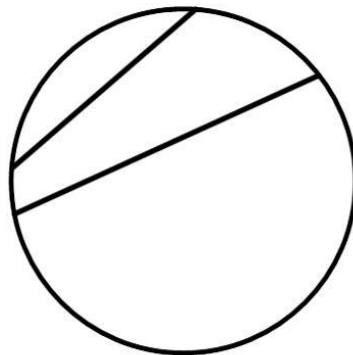
B



C



D

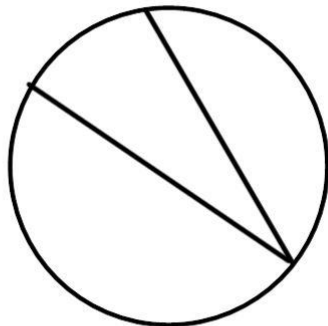


⑥

A MCK

+1
+2
+3

forms like when reflecting
only 1 to create scalene by giving
no acute angle segments.



C

Which One Doesn't Belong?

⑮

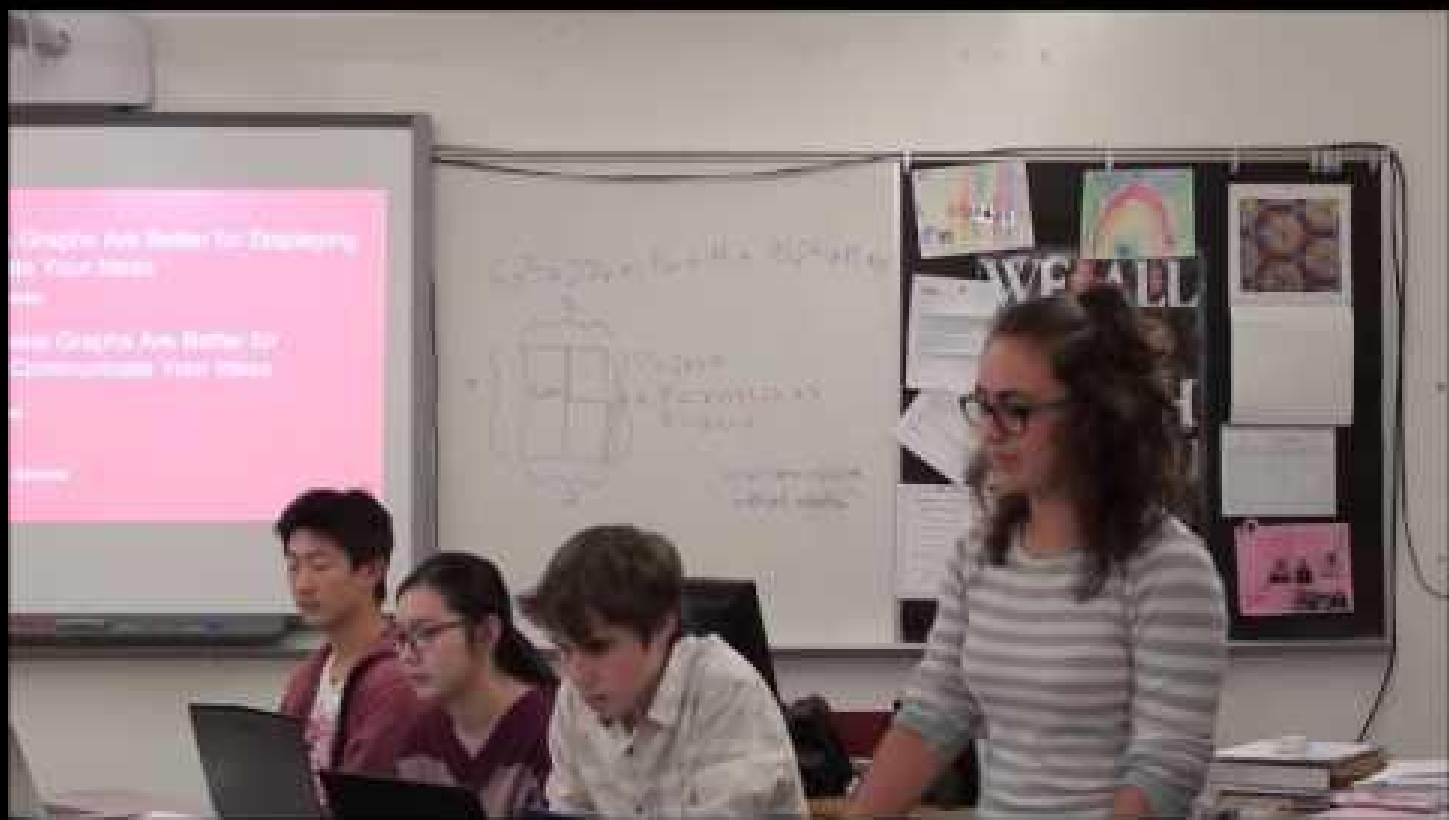
B

QMD

makes 2 distinct angles
has 3 ray/line segments
only 1 with 2 arcs adding to
form an angle's supplement
looks like a pie chart
all segments meet @ center
3 segments intersect in interior

lines not in better half
completely inside
makes quadrilateral
chord with 1 sec segment
bounding $> \frac{1}{2}$ circle
if segments extended intersect
4 separate arcs
overlapping least 1
no chords intersect.
no angles

⑬ D





Developing Student Communication Skills

Debate Formats and Protocols

Round Robin Debate

Debate Pools

Corners Debate

Informal Debate

Formal Debate

Snake Debate

33%	$\frac{1}{3}$
$\frac{5}{3}$	$\overline{.6}$

Reflection and Assessment

Debate Topic: **RADIANS VS. DEGREES**

Team A Position: **RADIANS ARE THE BEST WAY TO MEASURE ANGLES**

Team A Members: **SCOTT, ANGIE, FRANK, KRISTINA**

Category	Points Possible (Circle One)					
	0	1	2	3	4	5
Opening Statement	0	1	2	3	4	5
Key Arguments	0	1	2	3	4	5
Rebuttals	0	1	2	3	4	5
Stay on Topic	0	1	2	3	4	5
Public Speaking Skills	0	1	2	3	4	5
Closing Statement	0	1	2	3	4	5
Total (Sum of Points)	26					



What to debate?



Employee Ariana

32

75

38

42

47

68

51

51

58

31

51

65

Employee Brian

49

45

51

49

63

56

51

48

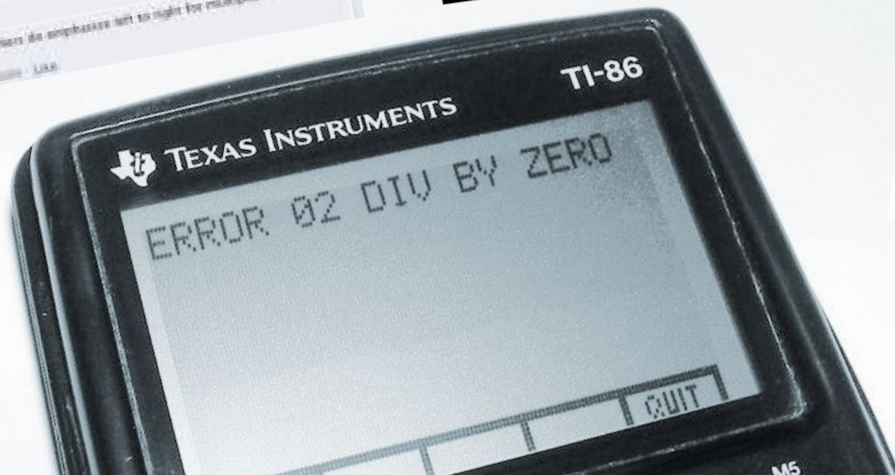
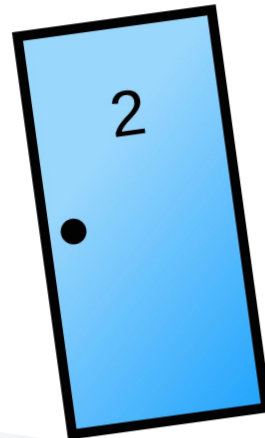
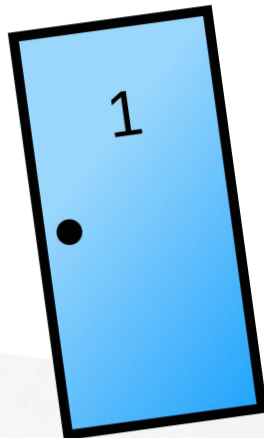
52

42

51

52

What to debate?



π vs τ

Resources

This presentation: <http://bit.ly/nctmdebate2017presentation>

Inside Mathematics [Problem of the Month](#) [Matching Cards](#)

[Scaffold considering both options](#) [Sentence Frames](#)

[Which One Doesn't Belong](#) (www.wodb.ca) [SVM!](#)

[Would You Rather?](#) (www.wouldyourathermath.com)

Debates Scorecard <http://bit.ly/MathDebateScorecard>

Debate Topics Spreadsheet <http://bit.ly/MathDebateTopics>

[NCTM Principles and Standards for School Mathematics](#)

Ethan Weker

Math Teacher, Mid-Peninsula High School

Algebra 1, Geometry, Pre-Calculus

Ethan@mid-pen.org

 @Ethan_MidPen

mathematiciansmusings.wordpress.org

Nóirín Foy

Math IST, Los Altos School District

6th-8th Grade Instructional Support

nfoy@lasdk8.org

 @Noirin_Foy



Rate this presentation on the conference app!

Search “**NCTM**” in your app store or follow the link at nctm.org/confapp to download

Join in the conversation! **#NCTMannual**

@Ethan_MidPen @Noirin_Foy

Download available presentation handouts from the online planner at nctm.org/planner