

Welcome to MAT137 - Calculus with proofs! Section L5101

- Class begins at 8:10pm ET Mon, Wed, Thursdays
- Your instructor is Sourav Sarkar (Hi!!)
- Your TAs are Stephen Zhang and Haolin Liu
- Course website: <http://uoft.me/MAT137>

- **Before next class:**
 - **Watch videos 1.1, 1.2, 1.3**
 - Download next class slides.
No need to look at them.

Things to do

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- This is a calculus class. But first, this is a logic and critical thinking class.
- This is going to be a tough course! Be prepared to work hard!

How to work?

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- Mute your mic and camera to avoid lag.

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Certainly, I will not!

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Certainly, I will not!
- You can also raise your hand and the TA will get back to you.



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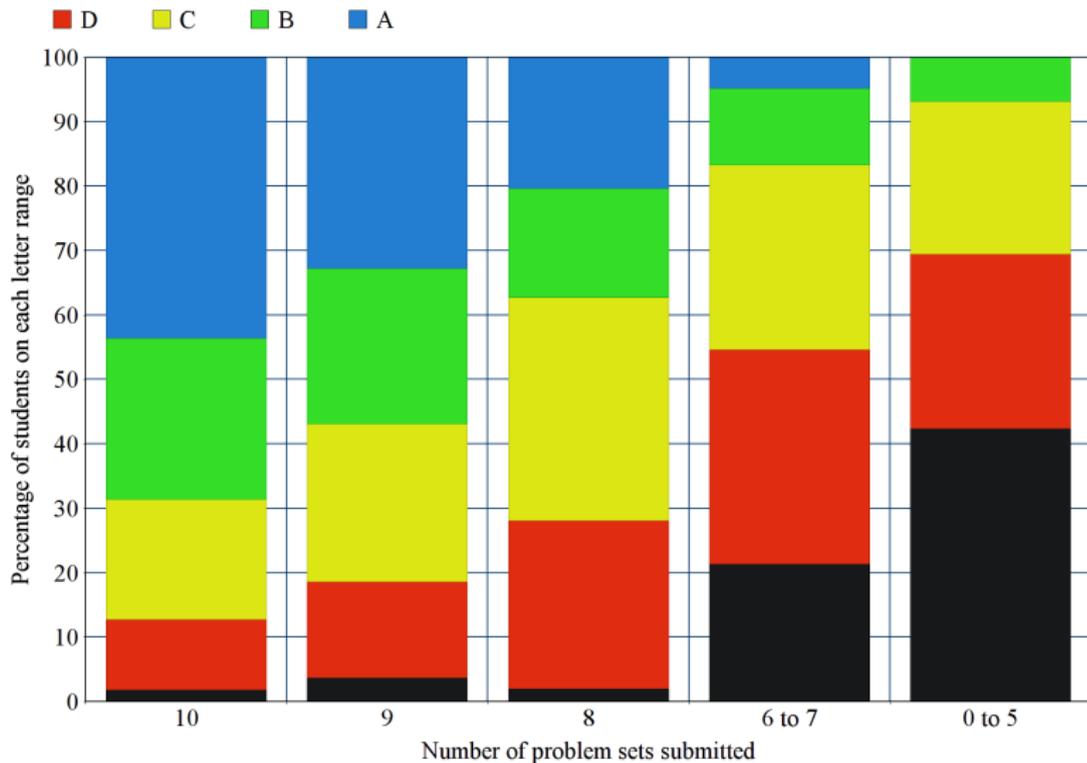
<http://www.free-world-maps.com/printable-white-transparent-political-blank-world-map-c3>

How do students do in MAT137?

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It depends on
how many problem sets they submit.

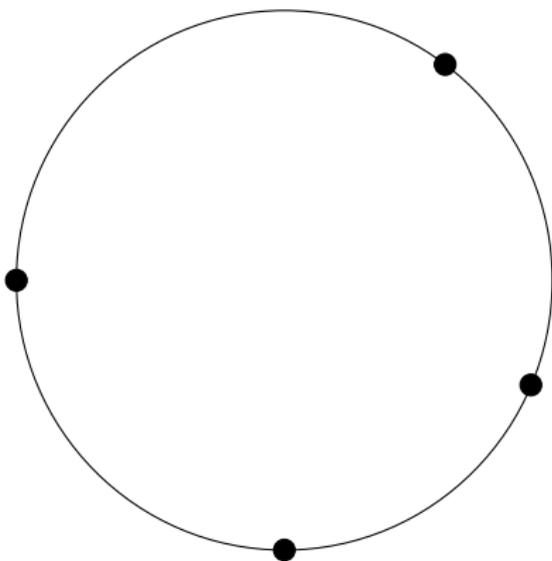
Performance in MAT137Y as a function of problem sets submitted (2018-2019)



A warm-up problem

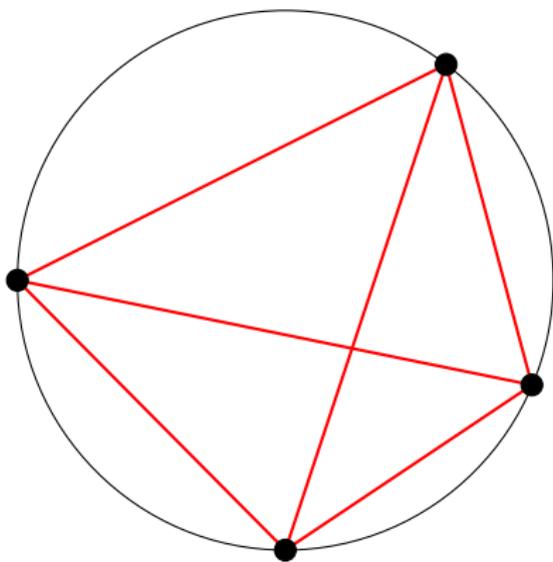
A warm-up problem

- Pick 4 points at random on a circle (without any symmetry).



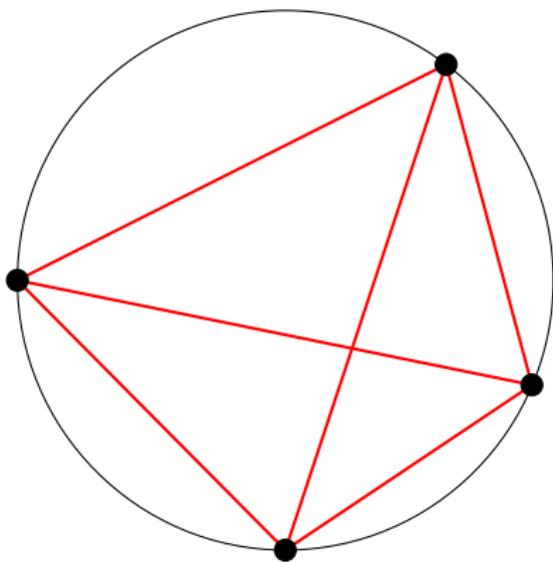
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- Pick 4 points at random on a circle (without any symmetry).
- Join every pair of points.

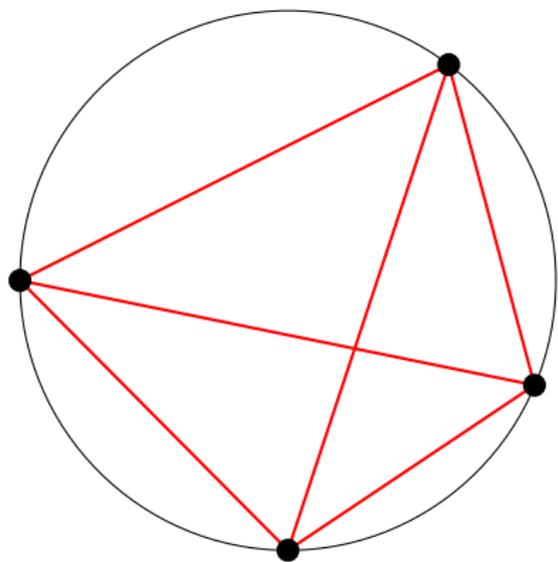


A warm-up problem

- Pick 4 points at random on a circle (without any symmetry).
- Join every pair of points.
- In how many regions is the circle divided?

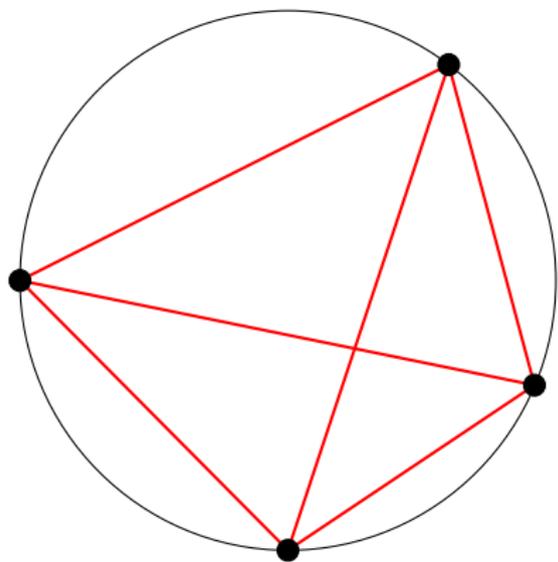


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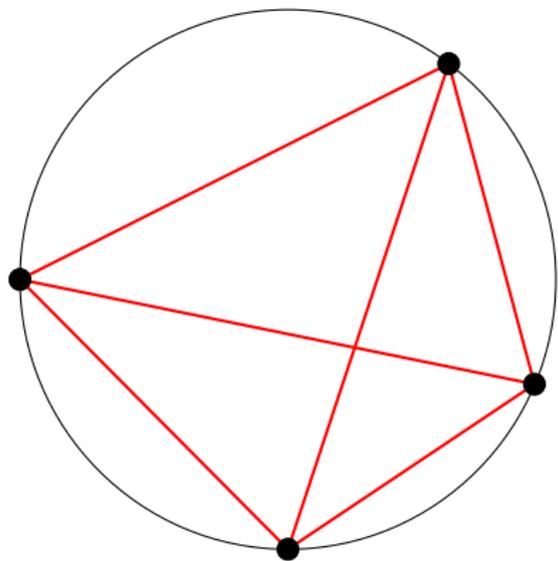
# of points	# of regions
4	8

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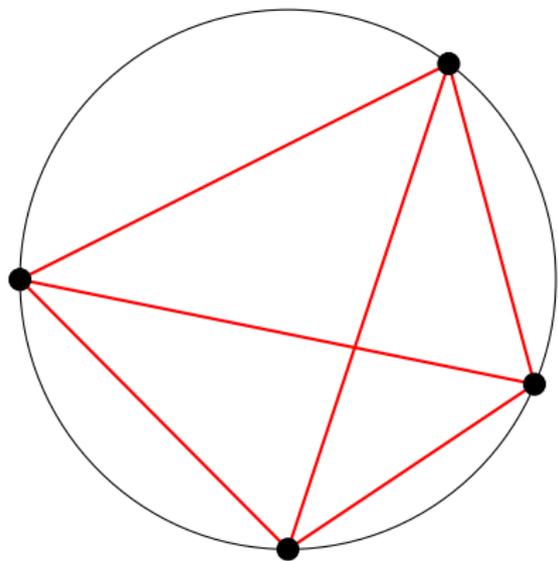
# of points	# of regions
4	8
5	

A warm-up problem



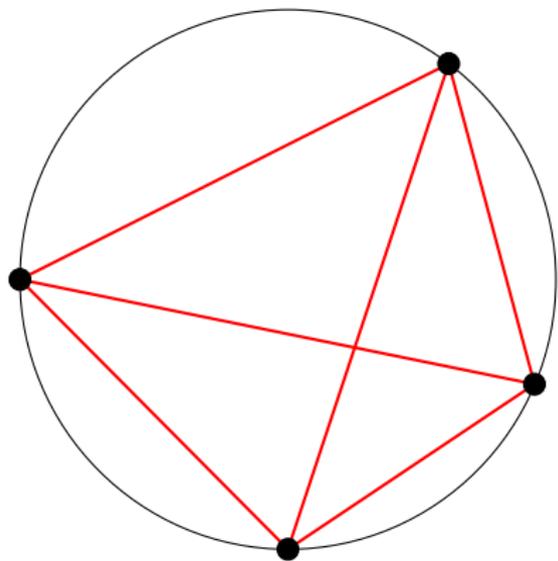
# of points	# of regions
1	
2	
3	
4	8
5	
N	???

A warm-up problem



# of points	# of regions
1	1
2	2
3	4
4	8
5	16
N	???

A warm-up problem



# of points	# of regions
1	1
2	2
3	4
4	8
5	16
N	???
6	31

Fire

Which of the following statements are equivalent to the statement,

“No two students in this class are not on fire.”

Which are equivalent to its negation?

1. “All student in this class, except at most one, are on fire.”
2. “Two students in this class are on fire.”
3. “For any pair of students in this class, one of them is on fire.”
4. “At least two students in this class are not on fire.”
5. “If I choose two students in this class and one of them is not on fire, then the other one is on fire.”