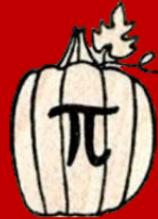# Notes to Nerds

Announcements

- Math Masters! We have some winners here -- Everyone who participated!
    1. Richards Middle School (30 pts)
    2. St. Luke School (24 pts plus tie break)
    3. Blackmon Road Middle School (24 pts)
       Faith Middle, Chattahoochee Middle, Phenix City Intermediate, and Double Churches Middle all blew our Math Teacher panelists away with their responses and problem solving skills.
        - Super thanks to Nancy Mims who worked so hard to coordinate Math Masters. She is truly *THE* MATH MASTER for her Herculean efforts!
- Free for CSU Students – Celebrate Pi Week by attending some math workshops with us!
- Parent Resource Page has some pretty cool MATH stuff! Check it out! Teachers might like it, too!
        - Calculating Pi by Weighing a Circle - Stand Up Maths **(Hilarious and remarkably accurate.)**

Upcoming Workshops

Tuesday, March 16: Aiming for Deeper Understanding - Using Desmos in the Elementary Classroom @3:45pm

Tuesday, March 16: Solving Systems of Equations (8th Grade) @4:30pm

Wednesday, March 17: Leverage the Standards HS Algebra 1 Workshop Series (Statistics) @4:30pm

Thursday, March 18: Leverage the Standards HS Geometry Workshop Series (Probability) @4:15pm

Tuesday, March 23: Aiming for Deeper Understanding - Using Desmos in the Elementary Classroom @3:45pm

Dootsie and the Volume of a Sphere

There's a particular generation of my family that had a fondness for interesting nicknames.
Dootsie was one of that generation. A boy with a man-sized body, he went to sea to support his mom and brother in a time before social safety nets and sensibilities. This name was borne by a no-nonsense, 6-foot 3-inch rough-cut Merchant Marine with a thirst for life, colorful jokes (with language to make a statue blush), a deep devotion to family, and, above all, his wife, Eunice. His 8th-grade education could not contain his curiosity for learning, ultimately, earning him an un-degreed Ph.D. bestowed by life itself.

Upon finding out I was studying to be a mathematics teacher, my cousin would ask wonderfully sincere questions, teaching me more than I could ever have helped him learn.

- *Why is it you can divide a fraction into another and get a bigger number?*
- *Where did this pie without an "e" come from?*
- *Why do you need to know how to factor if you can use the quadratic formula?*
- *Did you know that cone drinking cups will fill up this plastic McDonald's ball almost perfectly? Why is that*?

An avid learner, Dootsie shared his journey of growth by tutoring jailed men who were learning to read and earning GEDs.

A man of simple tastes, he had a passion for helping others. I hope to be a fraction of the teacher that he was. Also, I hope, somewhere along the line, I inherited his curiosity.

We celebrate Pi Day (March 14th) this weekend at the Math Collaborative. Dootsie, being *a man of letters*, took particular joy in celebrating March 15. With a phone call to an unsuspecting family member, Dootsie asked him, "What famous person died today?" In shock, the family member was thinking about headlines or a movie star or something like that, when from the other side of the phone line came a gravelly laugh and the words, *"Beware the Ides of March*." *

Being a self-professed bit of a nerd, proudly, I get to celebrate back-to-back holidays, one from math and one from literature.
Bless the teachers out there. Bless the lifelong learners.
AND HAPPY Pi-DAY!
Peter

*The Ides of March is the 74th day in the Roman calendar, corresponding to 15 March. It was … is famously dramatized in William Shakespeare's play Julius Caesar, when Caesar is warned by the soothsayer to "beware the Ides of March."

Pi Day "Party" on the Next Pages!

It's a Pi Day Celebration –
Math Masters 2020 Challenges – Nancy Mims

- [Pi Day Songs PowerPoint](#)

- ***All the Pets***

The students in Mr. Albert's math class conducted a survey of 50 students about their pets. Below are the results:
- 30 students have cats
- 25 students have dogs
- 16 students have both dogs and cats
- 5 students have mice
- 4 students have both dogs and mice
- 2 students have both cats and mice
- 1 student has all three

Your task is to determine how many of the 50 surveyed students have no pet?

Be prepared to justify your solution.

- ***How Much Pie?***
All squares are the same size, and the pies within each square are identical.

The Tau Bakery packs its cherry pies in three different packages. You love cherry pie and want to figure out which package gives you the most pie. Decide whether you want to select Package A, Package B, or Package C. You can assume that all pies the Tau Bakery makes are baked in two-inch deep pie plates.
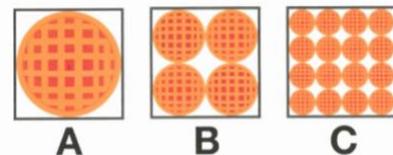
*Your task is to determine which package contains the most pie.*

Be prepared to justify your solution.

- ***Mathematical Constants***

Eight symbol cards lie face down on a table in the positions shown in the diagram below.

Of the eight cards:

- Every pi (π) borders a phi (φ).
- Every phi (φ) borders a tau (τ).
- Every tau (τ) borders an Euler's number (e).
- No tau (τ) borders a pi (π).
- No two cards of the same kind border each other.
- There are two pi (π), two phi (φ), two tau (τ), and two Euler's number (e).
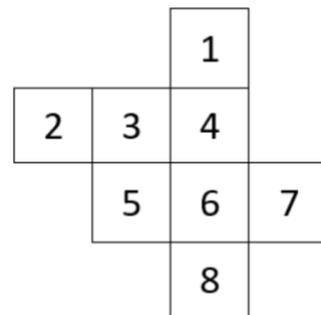
Your task is to determine the position of all the cards. If you are correct on your first attempt, your team will be awarded four points. If you are incorrect on the first attempt, the master teacher will give you a hint and deduct one point from the points possible for this problem.
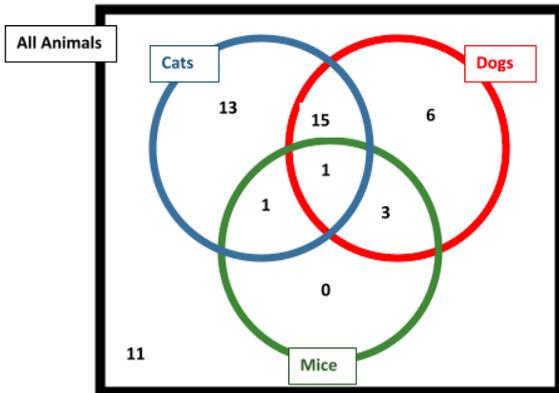
*Be prepared to justify **your solution**.*

Spoiler Alert Solutions follow…..

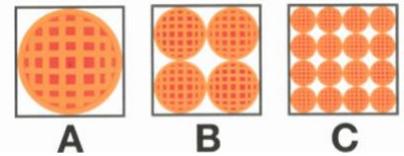# Solutions

- **_All the Pets_**
  Solution: 11

- **_How Much Pie?_**
  Solution: They are all the same.

  Box A: $A = \pi r^2$ and with just one pie that is it.

  Box B: One pie is $A = \pi (\frac{r}{2})^2 = 1/4 \pi r^2$ and with 4 pies $A = 4(\frac{1}{4})\pi r^2 = \pi r^2$

  Box C: One pie is $A = \pi (\frac{r}{4})^2 = 1/16 \pi r^2$ and with 16 pies $A = 16(\frac{1}{16})\pi r^2 = \pi r^2$

- **_Mathematical Constants_**
  Solution: The hint is φ is in the number 6 position.