



Notes to Nerds

January 22, 2021

Something New

Our team here, at the Math Collaborative, has been working hard to create a parent resource page to aid in this time of virtual learning.

We have found countless resources for some of the tougher and easier concepts parents have struggled to teach their children. This page will consist of resources for all grades and have tools to grow their knowledge of the concepts. Follow the link to check it out!

[Parent's Corner](#)



Upcoming Workshops

BONUS: Monday, January 25: [4th & 5th Grade, Multiplying and Dividing Fractions](#)

Tuesday, January 26:
[K-1st Grade, Objects Based on Attributes](#)

Tuesday January 26:
[8th Grade, Unit 4 Improve Sense Making & Connections](#)

Tuesday, February 2:
[All Grades, Numberless Word Problems](#)

Be sure to check your spam folder for the links.

Announcements



- We are excited about working with Tonya Herring's nursing students on dosing calculations. - Thanks Health Professions!

- Did we mention that there is a [Math Masters Event](#) Coming on March 6th! (*We would love to welcome even more Middle School Teams and maybe some Master Teachers too.*) Contact Peter or Nancy!
- COEHP professors - The Math Collaborative has a whole slate of workshops on Tuesdays, Wednesdays, and Thursdays that your students are welcome to attend (FOR FREE!) This will allow them PD, professional networking, and contact with current educators. [Registration Link](#)
- Excited about the work our team has been doing these past two weeks! 9 Virtual workshops reaching teachers from Muscogee, Harris, Clayton, Marion, Cherokee, and Russell Counties. Most importantly, over 50 teachers have attended! We will have 3 more in the next week alone! Check out the schedule at [UpComing Events](#)! (More coming in February! No Ground Hogs - just Nerdy Teachers working to get a little better!)



Numbers, Names, and Math

Two days ago, one of my favorite podcasts, *Numberphile*, dropped a new episode in time to be my lunchtime diversion.

The story was about [quasi-perfect numbers](#).

I knew what [perfect numbers](#) were, but I was a little bit intrigued about this particular type of number.

A quasi-perfect number is like a perfect number ... you add the divisors but get the number back plus one.

Hmmm! Sounds easy.

I stopped the podcast. Putting my sandwich aside I began a lunchtime quest to find a quasi-perfect number.

Knowing that six was a perfect number because its divisors: 1 and 2 and 3 add up to six, so it could not be that hard!

Boy, was I wrong! After about 15 minutes, two napkins, and a filled whiteboard, I realized this was not an easy proposition.

So, I returned to finish the podcast a little humbled.

Discovering that, as far as we know, **No one** has ever found a quasi-perfect number! Tons of papers have been written on the topic. All that math and no answer!

This got me thinking about the different types of numbers.

Of course, we know there are positive and negative numbers. There are natural numbers.

Rational numbers bring to mind irrational numbers. Real numbers and imaginary numbers make complex numbers.



Sending me down a rabbit hole even further, I got to thinking about other types of numbers.

Did you know there are [happy numbers](#)? And of course, sad numbers?

And [weird numbers](#)? And [abundant numbers](#)?

And so I queried... was there such a thing as *hopeful* numbers?

(I play this game where I try to imagine the answer before I look it up.)

I smiled to myself because I thought about the huge Lottery and the *hopefulness* when you drop two bucks on a set of numbers.

What about the *hoped-for* trend in covid-19 numbers? Or the numbers about a *hopefully* improving economy? It turns out there are no “mathematical” hopeful numbers, but maybe there should be?

I wonder what hopeful numbers would look like? What sort of pattern would hopeful numbers create? Could I conjecture to find more? Would I be able to prove they exist?

Pattern, conjecture, and proof this sounds like math, and we haven't lifted a pencil.

Happy Math,
Peter



PALINDROME



Find a palindrome using 754

	754
Reverse	457
Add	1211
Reverse	1121
Add	2332



Palindrome Dates In The 21st Century

For those fascinated with palindrome dates, Dr. Inan has calculated the palindrome dates for the 21st century. There are 26 seven-digit dates, and 12 eight-digit dates (in **bold**):

1. **October 2, 2001 (10022001)**
2. **January 2, 2010 (01022010)**
3. January 10, 2011 (1102011) (First seven-digit palindrome date in the 21st century)
4. **November 2, 2011 (11022011)**
5. February 10, 2012 (2102012)
6. March 10, 2013 (3102013)
7. April 10, 2014 (4102014)
8. May 10, 2015 (5102015)
9. June 10, 2016 (6102016)
10. July 10, 2017 (7102017)
11. August 10, 2018 (8102018)
12. September 10, 2019 (9102019)
13. **February 2, 2020 (02022020)**
14. January 20, 2021 (1202021)
15. **December 2, 2021 (12022021)**
16. February 20, 2022 (2202022)
17. March 20, 2023 (3202023)
18. April 20, 2024 (4202024)
19. May 20, 2025 (5202025)
20. June 20, 2026 (6202026)
21. July 20, 2027 (7202027)
22. August 20, 2028 (8202028)
23. September 20, 2029 (9202029)
24. **March 2, 2030 (03022030)**
25. January 30, 2031 (1302031)
26. March 30, 2033 (3302033)
27. April 30, 2034 (4302034)
28. May 30, 2035 (5302035)
29. June 30, 2036 (6302036)
30. July 30, 2037 (7302037)
31. August 30, 2038 (8302038)
32. September 30, 2039 (9302039) (Last seven-digit palindrome date in the 21st century)
33. **April 2, 2040 (04022040)**
34. **May 2, 2050 (05022050)**
35. **June 2, 2060 (06022060)**
36. **July 2, 2070 (07022070)**
37. **August 2, 2080 (08022080)**
38. **September 2, 2090 (09022090)**

Try This

- ☞ Choose a 2- or 3-digit number
- ☞ Reverse the digits to create a second number
- ☞ Add these two numbers
- ☞ Is the sum a palindrome?
- ☞ If not repeat the process with this new number.
- ☞ Is this sum a palindrome?
- ☞ If not, then continue until the sum is a palindrome.



Pal·in·drome:

Noun

a word, phrase, or sequence that reads the same backward as forward.

Who Am I?

- ☞ I am a 4-digit number.
- ☞ I am a palindrome.
- ☞ My ten's digit is 3 more than my thousands digit.
- ☞ The sum of my digits is 22.

Ten Days of Palindromes Starts on 1/20/2021

