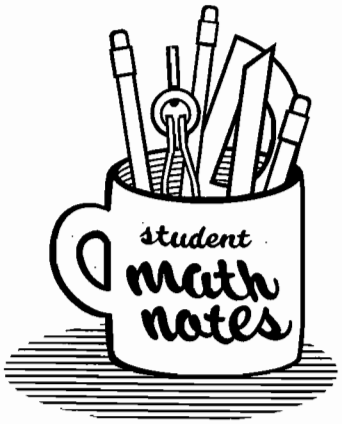
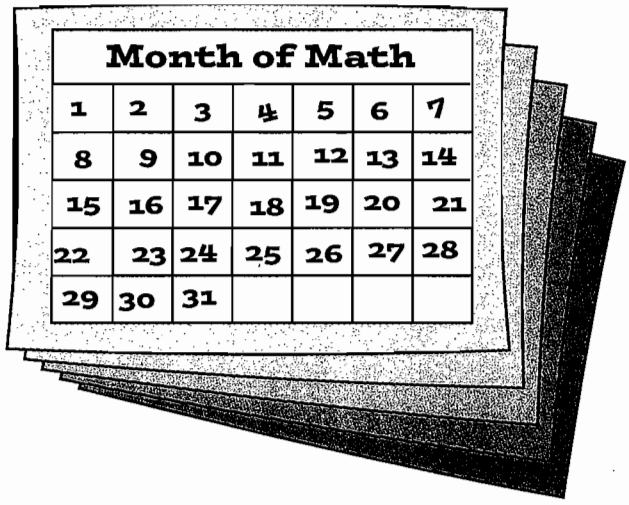


A Month of Math!

It's a new school year. Time to sharpen those math skills and have a little fun! Start the year off right by jumping right in to a "month of math."

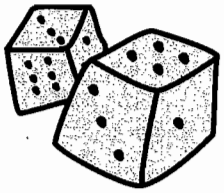


A month of math is exactly that—31 days of mathematics problems, facts, and trivia. The problems will help you review some math vocabulary, remember some common facts, make you use your research skills, and start the school year in a fun and exciting way. You may want to challenge another classroom to work along with you on this project. The problems vary in difficulty, so try to get several different grade levels involved.

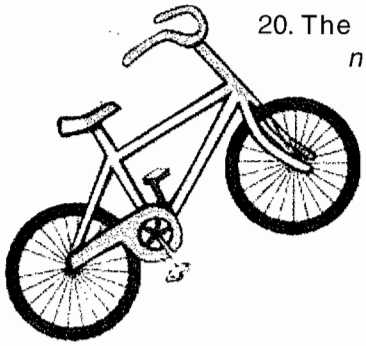
Start by making a big calendar; write only the date in each square and hang it on your classroom wall. To make it a little more interesting, there are two problems per date on the calendar. The sixty-two problems each have an answer that is an integer from 1 to 31; each integer is a solution to two different problems. The problems are not in order, so as you complete each item, enter it in your calendar. Since some problems have more than one answer, you may have to wait until the end of the month to see which answer you should use so that your calendar has only two problems per date. Let's get started!

Find the Following

1. The number feared by Pythagoreans, since it lies halfway between the only two integers that can be both the perimeter and the area of the same rectangle.
2. The number of sides in an argument.
3. The two-digit number whose cube root is the square root of the sum of its digits.
4. The number of noncollinear points needed to determine a circle.
5. A number that is equal to the sum of the digits of its cube.
6. The only positive number that is neither prime nor composite.
7. The number of seasons.
8. The number of different kinds of wallpaper groups.
9. The number of days in a fortnight.
10. The base of common logarithms.
11. The only prime that is the sum and difference of two primes.
12. The smallest perfect number.
13. The radius of a circle when the numeric values of the circumference and the area are equal.
14. The last two digits of 5^{347}.
15. The total number of pips on a standard die.
16. The only perfect number of the form $x^n + y^n$.



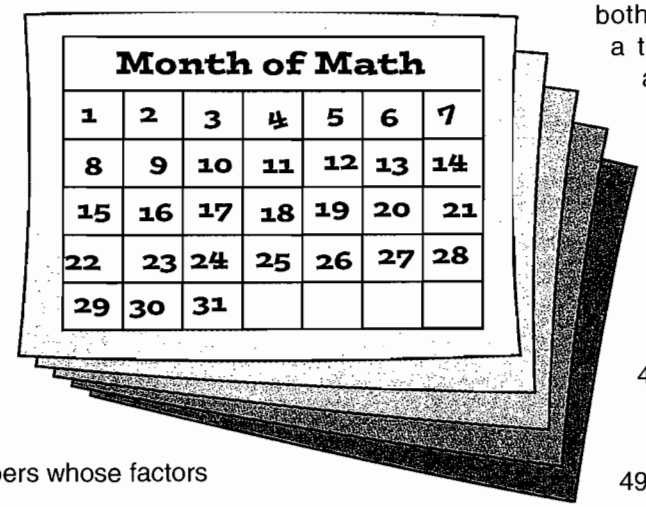
17. The number of balls used in a standard pool game—not counting the cue ball.
18. The smallest number of people in a room where the probability of two of them having the same birthday is at least 50 percent.
19. The number of Quidditch players on all the house teams at Hogwarts.



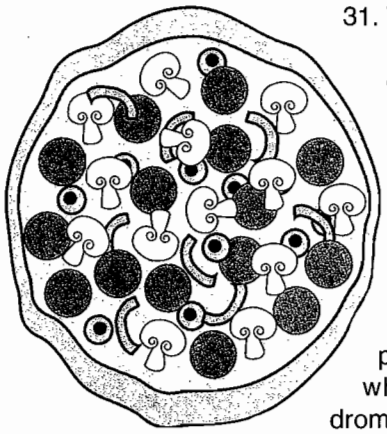
20. The only integer n for which $n = x^y = y^x$, for $x \neq y$.
21. The number of stages, including the prologue, in the 2005 Tour de France.
22. The largest integer that is not a sum of distinct powers.

The editors wish to thank Tom Butts, University of Texas at Dallas, Richardson, Texas, for the ideas used in this issue of the *NCTM Student Math Notes*.

23. The number of legs on a squid.
24. The minimum age required to be a U.S. Senator.
25. The number of colors in the flag of the United States of America.
26. The sum of 1/2 + 1/4 + 1/8 + . . .
27. The cube root of this number is 1 more than the smallest prime.
28. The factor of every palindrome with an even number of digits.
29. The number of players in the batting order of a baseball team.
30. The first of two consecutive numbers whose factors have the same sum.

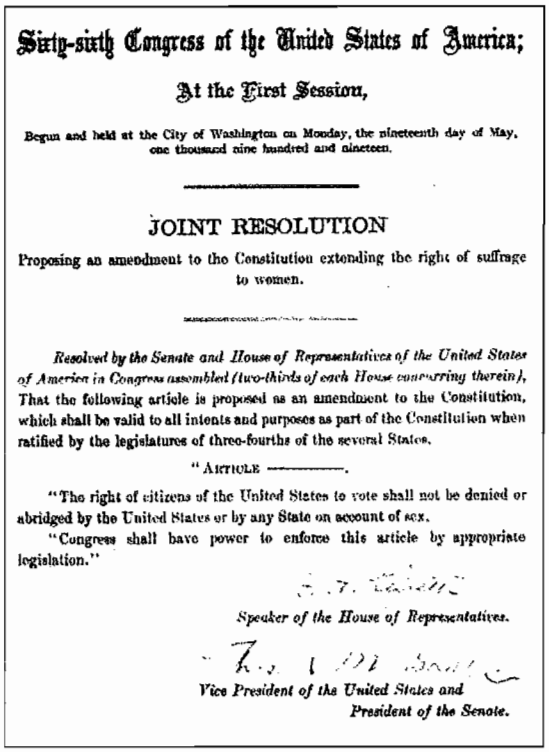


44. One of two numbers that can be both the area and perimeter of a triangle whose side lengths are a Pythagorean triple.
45. The number of months in the Julian calendar.
46. A number that is neither prime nor the sum of two distinct primes.
47. The Pythagorean masculine marriage number.
48. The largest integer that is not the sum of two or more different primes.
49. The number of Wonders of the Ancient World.



31. The maximum number of pieces into which a pizza can be cut by making 6 cuts.
32. The smaller of two triangular numbers whose sum and difference are also triangular numbers.
33. The smallest non-palindromic number whose square is a palindrome.
34. The smallest abundant number.
35. The number of frieze patterns.
36. The number of furlongs in a league.
37. The base for the hexadecimal system.
38. The number of legs on a scorpion.
39. The number in a baker's dozen.
40. The value of a score (as in "four score and seven years ago").
41. The number of flavors of ice cream at Baskin-Robbins.
42. The number of the amendment that gave women the right to vote.
43. The number of days in a lunar cycle.

50. The larger number of the fourth set of twin primes.
51. The number of letters in the English alphabet.
52. One of the four numbers where $n!$ has n digits.
53. The only number whose spelling contains the same number of letters as the number itself.
54. The only cube that is one less than a square.
55. One of the two numbers that can be both the perimeter and the area of the same rectangle.
56. A number n where if the sum of the digits of the number is divisible by n, then the number itself is divisible by n.
57. The least number of moves in the Tower of Hanoi puzzle with 5 disks.



Sixty-sixth Congress of the United States of America;

At the First Session,

Begun and held at the City of Washington on Monday, the nineteenth day of May, one thousand nine hundred and nineteen.

JOINT RESOLUTION

Proposing an amendment to the Constitution extending the right of suffrage to women.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled (two-thirds of each House concurring therein), That the following article is proposed as an amendment to the Constitution, which shall be valid to all intents and purposes as part of the Constitution when ratified by the legislatures of three-fourths of the several States.

"ARTICLE ———.

"The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of sex.

"Congress shall have power to enforce this article by appropriate legislation."

Speaker of the House of Representatives.

Vice President of the United States and President of the Senate.

58. The two-digit number that is divisible by both the sum and the product of its digits.
59. The number of faces of an icosahedron or the number of vertices of a dodecahedron.
60. A paraskevidekatriaphobe fears this date when it falls on a Friday.
61. The number of days in February during a leap year.
62. The number of years you must be married to celebrate your silver wedding anniversary.