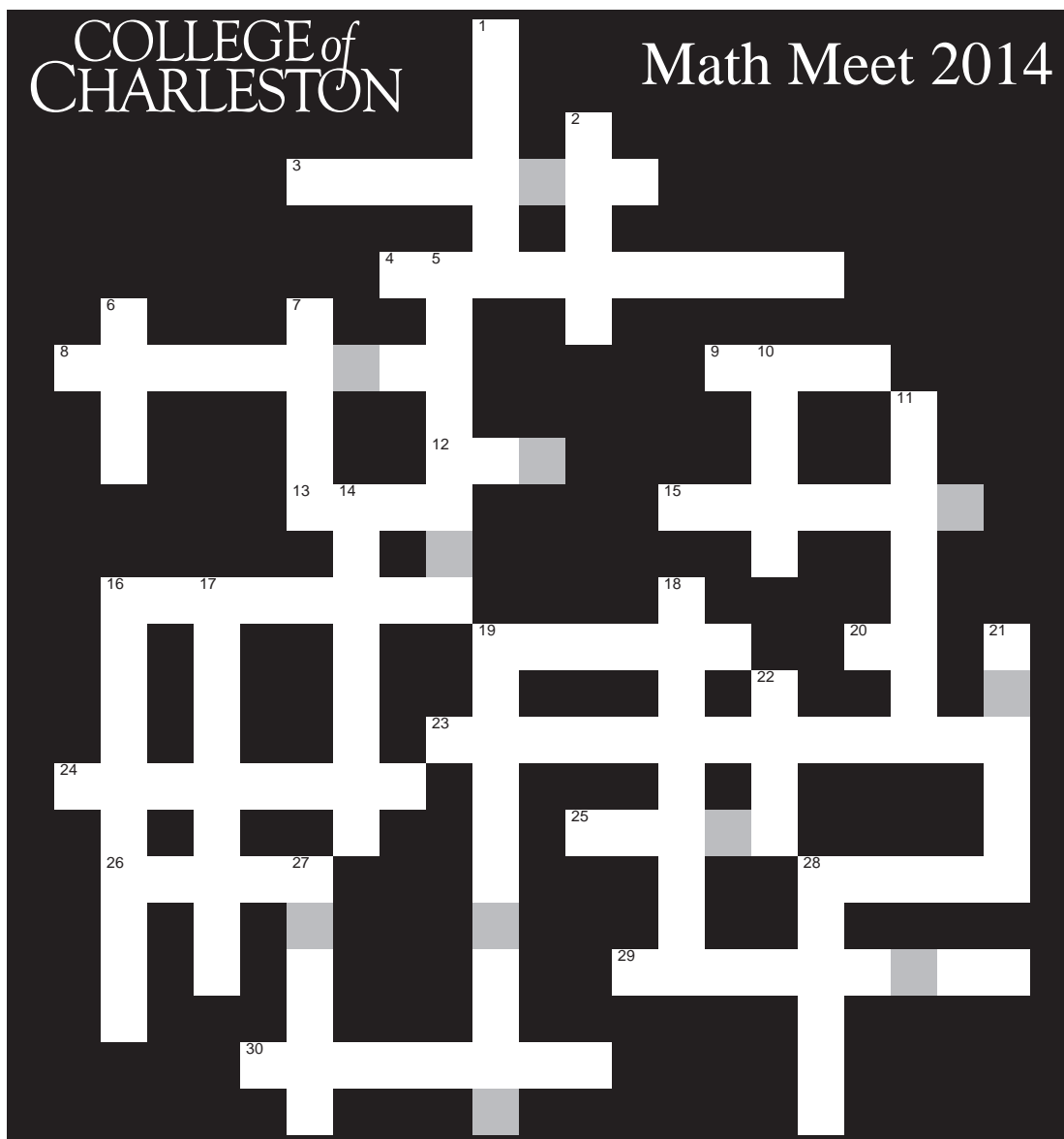


All-Day Sprint 2014: Mathematical Crossword/Anagram

(Put one answer sheet, the one with your school name printed on it, into the box outside Maybank Hall by 2:00PM)



Across:

- 3 $f(x) = \sin(x)$ is an example of a _____.
- 4 π , $2^{1/3}$ and e are all _____ numbers.
- 8 A cube is to a square as one of these is to a cube.
- 9 If you draw one circle representing set theory terminology and another representing last names of British logicians, then this word would be in their intersection.
- 12 Word used to describe a function satisfying
- $$f(x) + f(-x) = 0$$
- for all x in its domain.
- 13 An integer n such that $n \equiv 0 \pmod{2}$ is _____.
- 15 A German mathematician who made major contributions to geometry and real analysis, including the definition of definite integrals as a limit of approximating sums.
- 16 The graphs of $y = \frac{1}{2}x - 3$ and $4x + 2y = 15 + 5x$ are _____ lines.
- 19 Parabolas and hyperbolas, for example.
- 20 The total number of radians in the angles of a planar triangle.
- 23 The graphs of $y = \frac{1}{3}x - 5$ and $-161x + 3y = 8 - 170x$ are _____ lines.
- 24 Simplify the equation $g(i^n) + y = -it$ where $g(x) = xf(x)$ to reveal a mathematical term.
- 25 German mathematician famous for proving the Fundamental Theorem of Algebra as an adult, and for

quickly adding up a lot of numbers for his teacher as a child.

- 26 The most frequently measured values in samples.
- 28 Contrary to what its name implies in English, this is not an uncrossable boundary but merely a value that is approached.
- 29 Simplify the sum

$$\sum_{k=0}^2 \left[g^r + \left(3g^r + \frac{c^2 i}{2} - f(k + i^b - 1) - O(n^A) \right) k^2 \right]$$
$$+ \sum_{m=0}^2 \left[O(n^A) + \left(-6g^r - \frac{c^2 i}{2} + 2f(m + i^b - 1) + O(n^A) \right) m \right]$$

to produce a famous mathematical name.

- 30 The technical mathematical name for something like

$$1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \dots$$

Down:

- 1 It has both length and direction.
- 2 Solutions to $p(x) = 0$ are sometimes called its _____.
- 5 $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{2}{5}$ are examples of _____ numbers.
- 6 $i^2 + (\pi^2) \left(\pi^{-4/3} \right)^{3/2}$

- 7 2, 3, 5, 7, 13 and 641 are examples of _____ numbers.
- 10 A famous Swiss mathematician whose name is usually pronounced like the name of the professional hockey team from Edmonton, Alberta.
- 11 The first of two words to describe a number of the form $\frac{n!}{k!(n-k)!}$.
- 14 Its magnitude is the speed.
- 16 A sum of constant multiples of non-negative integer powers of the variable.
- 17 97 when 605, 592 is divided by 545, for example.
- 18 The family name of the famous 18th century Swiss mathematicians Daniel, Jacob and Nicolaus.
- 19 The second of two words to describe a number of the form $\frac{n!}{k!(n-k)!}$.
- 21 A French lawyer who contributed to early results on calculus but is most famous for a "theorem" in number theory whose proof could not be fit in the margin of the book he was reading.
- 22 A string of them form a binary number.
- 27 Simplify the equation to spell a mathematical term: $s = \ln(-s) - r^i$.
- 28 A function of the form $f(x) = ax + b$ is said to be _____.

Anagram: The letters in the grey boxes can be rearranged to give an answer to the anagrammed clue "A new rajmo at the Celelog of Cleshnarot that combines tham, babiprolity and cutompers." Write the answer in this box:

Notes:

- To score this All-Day Sprint, we will first eliminate any answer sheets which do not have a correct answer to the anagram. Then we will give one point for each box filled with the correct letter. Finally, we will decrease the score by one point for each box filled with an incorrect letter.
- Note that it is to your advantage to leave boxes blank rather than to fill them with incorrect guesses.
- The winning team will be selected randomly from among those schools that get the top score.