KSU TUSC MATH

AWARENESS WEEK

Trivia Contest

April 15–18, 2019

Name: _____

Address: _____

Telephone Number: _____

Email Address: _____

CONTEST PRIZE: The winner of this contest will receive a $200 tuition waiver to Kent State Tuscarawas.

RULES FOR THE TRIVIA CONTEST:

- This contest is open to all students currently registered at Kent State Tuscarawas.
- You must show all work. Entries submitted without showing work will be disqualified.
- In the event that more than one correct entry is received for this contest, a random drawing of all correct entries will be used to determine the winner.
- All winners will be notified by mail and will be listed on the Kent State Tuscarawas Math Awareness Week Website at
  http://www.personal.kent.edu/~bosikiew/MathWeek
- All entries should be submitted to either Dr. Beth Osikiewicz, B-115, or Dr. Jeff Osikiewicz, B-110, by 7:00 PM, Thursday, April 18, 2019. Problems may also be placed in our mailboxes located in the Faculty Support Office, B-120.
- If you have questions concerning the problems, please email one of the organizers at bosikiew@kent.edu or josikiew@kent.edu
- The organizers are not responsible for late or lost entries.
- The organizers reserve the right to modify the rules if necessary. The decision of the judges is final.
- The $200 tuition waiver can only be used at Kent State Tuscarawas during Summer 2019, Fall 2019, or Spring 2020. It **cannot** be exchanged for a gift certificate or cash, and **cannot** be transferred to another student.

DUE BY THURSDAY, APRIL 18, 2019 AT 7:00 PM

Signature: _____

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1. Chinese mathematician, Zu Chongzhi (sometimes written Tsu Ch'ung Chi) gave what **rational number approximation** to π in his text *Zhui Shu* (Method of Interpolation)?

2. This mathematician was the most prolific writer of mathematics. His/her name is attached to every branch of mathematics. Although blind in the last 17 years of his/her life, this was one of his/her most productive periods. Though far too numerous to list, here are a few of this mathematician's contributions: using $f(x)$ for functional notation; using the variables $a, b, c, \ldots$; using the symbols e, i, and σ; and the equation "$e^{i\pi} = -1$". Who is this mathematician, born in Switzerland in 1707?

3. **Archimedes** was the greatest mathematician of his age. His contributions in geometry revolutionized the subject and his methods anticipated the integral calculus 2,000 years before Newton and Leibniz. He was also a thoroughly practical man who invented a wide variety of machines including pulleys and the Archimedean screw pumping device. His grave is decorated with which **two** 3-dimensional figures?

4. What is the **orthocenter** of a triangle?

5. This mathematician had numerous contributions to the theory of elections, perhaps his most significant being *Parliamentary Elections* and *The Principles of Parliamentary Representation* both written in 1884. Although he was a mathematician, he is best known by the pseudonym Lewis Carroll as the author of *Alice's adventures in wonderland* (1865) and *Through the looking glass* (1872), children's books that are among the most popular of all time. What is this mathematician's real name?

6. The system of **Roman numerals** is a numeral system originating in ancient Rome, and was adapted from Etruscan numerals. The roman numeral system used in antiquity was slightly modified in the Middle Ages to produce the system we use today. It is based on certain letters which are given values as numerals. What is the value of $\overline{D}$ in the roman numeral system?

7. What are the coordinates of the **midpoint of the line segment** connecting the two points $A = (x_1, y_1)$ and $B = (x_2, y_2)$?

8. This area of mathematics applies mathematical and statistical methods to assess risk in the insurance and finance industries. Individuals with this degree mathematically evaluate the probability of events and quantify the contingent outcomes in order to minimize financial losses associated with uncertain undesirable events. What is this field of mathematics called?

9. An **icosahedron** is one of the five Platonic Solids. It is formed by how many congruent equilateral triangles?

10. This mathematician is recognized as one of the most influential mathematicians of the 19th and early 20th centuries. He put forth a most influential list of 23 unsolved problems at the **International Congress of Mathematicians in Paris in 1900**. This is generally reckoned the most successful and deeply considered compilation of open problems ever to be produced by an individual mathematician. This list of problems set the course for much of the mathematical research of the 20th century. Name this mathematician.

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11. The **Fields Medal** is considered to be the equivalent of the Nobel prize for mathematics. John Charles Fields (1863-1932), a Canadian mathematician, endowed funds in his will for an award for mathematical achievement and promise that would emphasize the international character of the mathematical endeavor. The first Fields Medal was awarded at the International Congress of Mathematics meeting in Oslo in 1936. Since 1950 the medal has been awarded every four years at the International Mathematical Congress to between 2 and 4 mathematicians. Although there is no specific age restriction in Fields' will, he did wish that the awards recognize both existing work and the promise of future achievement. As a result the Fields Medal has been restricted to mathematicians under what age?

12. Mathematicians are employed by private firms in various capacities or as professors at universities or other educational institutions, by research organizations, or by military or civilian government agencies. Who is the **largest employer of mathematicians in the United States**?

13. This female mathematician was born in France in 1776. Despite initial opposition from her parents, she gained education from books in her father's library and from correspondence with famous mathematicians such as Lagrange, Legendre, and Gauss. One of the pioneers of elasticity theory, she won the grand prize from the Paris Academy of Sciences for her essay on the subject. Her work on Fermat's Last Theorem provided a foundation for mathematicians exploring the subject for hundreds of years after. Because of prejudice against her gender, she was unable to make a career out of mathematics, but she worked independently throughout her life. Name this female mathematician.

14. Name the individual who is attributed with the following quote: "No human investigation can be called real science if it cannot be demonstrated mathematically."

15. How many feet are there in one mile?