WELCOME TO MATH JEOPARDY!

CEMC

Grade 7/8 Math Circles

Rules of Jeopardy

- Teams of 5 people, each with a whiteboard and a marker
- Write your answer on the whiteboard and raise it to the instructor
- The first team to get the correct answer gains full points, and all other teams to answer correctly gain half points
- You do not lose points for incorrect responses, but each team only gets one try per question
- The first team to answer correctly picks the next question
- AFTER I finish reading the question, you have a time limit for you to think about it as a team
  - For 100 – 400 level questions, 90 seconds
  - For 500 level questions, 2 minutes

THE DAILY DOUBLE

- There are two daily doubles in each round, which can be extremely beneficial or detrimental to your success!
- If you pick a “Daily Double” slide, you can “bet” extra money
  - If your team has 3000 points, you can bet up to 3000 points (or 100, or 373, or 2999 if you want, but no more than 3000)
  - If you have 0 points and pick a daily double, you can bet up to the regular points for that question
  - If you get it right, you win that many points
  - If you’re wrong, you lose that many points

Constructable Numbers	Platonic Solids	Intro to Proofs	Geometric Sequences	Types of Numbers	Parabolas	???
$100	$100	$100	$100	$100	$100	$100
$200	$200	$200	$200	$200	$200	$200
$300	$300	$300	$300	$300	$300	$300
$400	$400	$400	$400	$400	$400	$400
$500	$500	$500	$500	$500	$500	$500

Double Jeopardy

Question 1-100

The Ancient Greeks used these two tools to create numbers

Answer

What is a ruler/straightedge and a compass?

Question 1-200

A number that can drawn using only a straightedge and a compass is known as this

Answer

What is a constructable number?

Question 1-300

Which of the following is *not* a constructable number:

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

Answer

What is -2?

Question 1-400

True or false, all real numbers are constructable

Answer

What is false?

Question 1-500

True or false, all fractions are constructable

Answer

What is true?

Question 2-100

This describes a polygon whose vertex angles are all equal

Answer

What is equiangular?

Question 2-200

This describes when two objects have the same shape, but not the same size

Answer

What is similar?

Question 2-300

Called Euler's formula, this formula characterizes the platonic solids

Answer

What is $V - E + F = 2$?

Question 2-400

A symbol denoted {p, q}; where p is the number of edges, and q is the number of faces that meet at each vertex

Answer

What is the Schläfli Symbol?

Question 2-500

This describes an object which is fully contained within its half-plane

Answer

What is convex?

Question 3-100

This is another name for an implication

Answer

What is an “if, then” statement?

Question 3-200

Fully factoring the expression $24xy + 12x^2y + 6xy^2$ results in the product of these two quantities

Answer

What are $(6xy)$ and $(4 + 2x + y)$?

Question 3-300

To prove the statement, “If a real number is divisible by 10, then the ones digit is a zero”, you assume this

Answer

What is “a real number is divisible by 10”?

Question 3-400

74589 is divisible by this positive digit

Answer

What is 3?

Question 3-500

These two positive integers, x and y, have the smallest positive sum such that they are a counter-example to the statement, "If x and y are perfect squares, then $x + y$ is a perfect square."

Answer

What are $x = 1$ and $y = 1$?

Question 4-100

An ordered collection of numbers is known as this

Answer

What is a sequence?

Question 4-200

True or false, the sequence {5,5,5,5,5,5,5,5,5,5} is geometric?

Answer

What is true?

Question 4-300

If to move from one term to the next in a sequence, we multiple by the same number, then the sequence is known as this

Answer

What is a Geometric Sequence?

Question 4-400

This is the formula for the sum of a geometric series. Label each variable in the formula.

Answer

What is $a \times (1 - r^n) \div (1 - r)$?

Question 4-500

This must be true about the common ratio in order to add an infinite number of terms in a geometric series

Answer

What is $r < 1$?

Question 5-100

This set exactly contains the whole & positive numbers, not including 0

Answer

What is the Natural Numbers $\mathbb{N}$?

Question 5-200

If all elements of A are also elements of B, then A is known as this

Answer

What is a subset of B?

Question 5-300

This type of number cannot be written as a fraction

Answer

What is an irrational number?

Question 5-400

This is a type of number that, when squared, returns a negative number

Answer

What is an imaginary number?

Question 5-500

This set contains every possible type of number on the number line

Answer

What is the set of Real Numbers $\mathbb{R}$?

Question 6-100

The function $y = x^2 + x + 1$ will form a parabola that opens in this direction when graphed

Answer

What is up?

Question 6-200

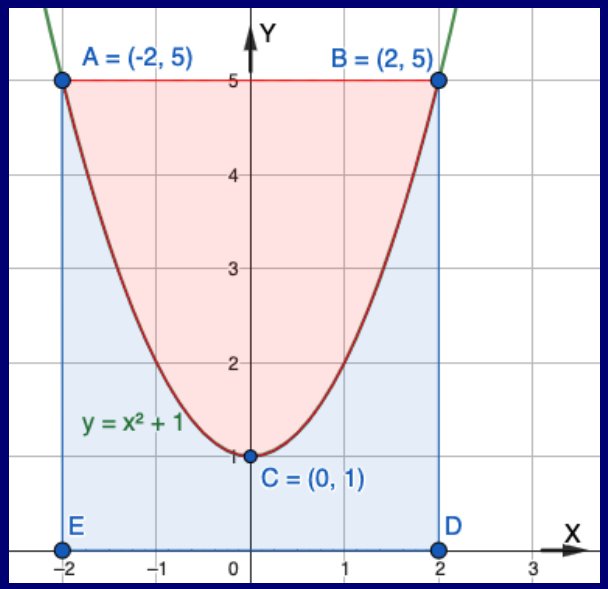
A parabola can be defined as the collection of points that are an equal distance from a fixed point and this

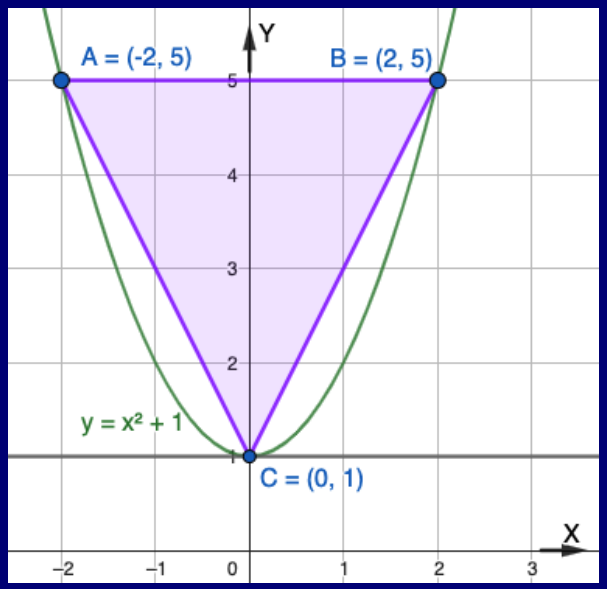
Answer

What is a fixed line?

Question 6-300

The red area is equal to the area of the purple triangle multiplied by this improper fraction





Answer

What is $\frac{4}{3}$?

Question 6-400

Objects like satellites often have a parabolic shape because when waves reflect off the dish, they ALL pash through the name of this point

Answer

What is the focus?

Question 6-500

James kicked a soccer ball that followed the path modelled by the function $h = -0.5t^2 + 3t$ where h is the height above the ground in meters at time t in seconds. The ball was on the ground at $t = 0$ and $t = 6$ and at the peak of the trajectory, the ball was this high.

Answer

What is 4.5 meters?

Question 7-100

The terms dump, floater, and wipe are used in this sport

Answer

What is volleyball?

Question 7-200

This country invented ice cream

Answer

What is China?

Question 7-300

An elephants pregnancy is this many months

Answer

What is 22 months?

Question 7-400

This country is the smallest in the world, with an area of roughly 0.5 km^2

Answer

What is Vatican City?

Question 7-500

The unit “mickeys” measures the speed of this object

Answer

What is a computer mouse?

DOUBLE JEOPARDY

Constructable Numbers	Platonic Solids	Intro to Proofs	Geometric Sequences	Types of Numbers	Parabolas	???
$200	$200	$200	$200	$200	$200	$200
$400	$400	$400	$400	$400	$400	$400
$1000	$1000	$1000	$1000	$1000	$1000	$1000

Double Jeopardy 1-200

If a shape can be shifted, rotated, or reflected to become another shape, then these two shapes are said to be what?

Answer

What is Congruent?

Double Jeopardy

Double Jeopardy 1-400

The Ancient Greeks would write out the equation $2 \times 6 = 12$ like this

Answer

What is “two multiplied by six is equal to twelve”?

Double Jeopardy

Double Jeopardy 1-1000

True or false, $\sqrt{2}$ **is a constructable number**

Answer

What is true?

Double Jeopardy

Double Jeopardy 2-200

He is first mathematician to write up a set of conditions that each platonic solid must follow

Answer

Who is Euclid?

Double Jeopardy

Double Jeopardy 2-400

Two similar shapes, which are similar by a factor of k, have areas related by this factor

Answer

What is k^2?

Double Jeopardy

Double Jeopardy 2-1000

Polygon, Polyhedron, and this are the names of shapes for 2D, 3D, and higher dimensions

Answer

What is Polytope?

Double Jeopardy

Double Jeopardy 3-200

The fully expanded form of $2xy(10x + 2 + 3y)$ is this expression

Answer

What is

$$20x^2y + 4xy + 6xy^2?$$

Double Jeopardy

Double Jeopardy 3-400

2k, where k is an integer, is a way to describe ALL of this type of number

Answer

What are even numbers?

Double Jeopardy

Double Jeopardy 3-1000

You are told that a, b and k are integers and that $10a + b = 3k$. Give a proof that shows $a + b$ is divisible by 3. That is, show $a + b = 3m$ for some integer m

Answer

$$10a + b = 3k$$

$$a + b = 3k - 9a$$

$$a + b = 3(k - 3a)$$

$a + b = 3m$ where m is an integer

Double Jeopardy

Double Jeopardy 4-200

This is the sum of the first 20 terms of the sequence

$\{5, 10, 15, 20, \ldots\}$

Answer

What is 163835?

Double Jeopardy

Double Jeopardy 4-400

This is the sum of the sequence

$$\{17, \frac{51}{5}, \frac{153}{25}, \frac{459}{125}, \dots\}$$

Answer

What is 42.5?

Double Jeopardy

Double Jeopardy 4-1000

If to move from one term to the next in a sequence, we add by the same number, then the sequence is known as this

Answer

What is an Arithmetic Sequence?

Double Jeopardy

Double Jeopardy 5-200

$\pi, \sqrt{2}$, and e are all this kind of number

Answer

What is an irrational number?

Double Jeopardy

Double Jeopardy 5-400

Adding two irrational number leaves us with this kind of number

Answer

What is an irrational number?

Double Jeopardy

Double Jeopardy 5-1000

The size of the natural numbers is exceeded by this type of number

Answer

What is the Real Numbers?

Double Jeopardy

Double Jeopardy 6-200

To make a parabola in the general form $y = ax^2 + bx + c$ wider, you would make the value of this variable closer to this number

Answer

What is make a closer to 0?

Double Jeopardy

Double Jeopardy 6-400

This mathematician found a way to calculate the area under a parabola long before calculus was invented

Answer

Who is Archimedes?

Double Jeopardy

Double Jeopardy 6-400

The integral $\int_0^2 x^2 + 2\,dx$ calculates the area under this function from this lower bound to this upper bound

Answer

What is $y = x^2 + 2$ from $x = 0$ to $x = 2$?

Double Jeopardy

Double Jeopardy 7-200

This professional hockey team is based in Winnipeg, Manitoba

Answer

Who are the Winnipeg Jets?

Double Jeopardy

Double Jeopardy 7-400

This is the name of the world's largest ocean

Answer

What is the Pacific Ocean?

Double Jeopardy

Double Jeopardy 7-1000

This is the most consumed manufactured drink in the world

Answer

What is tea?

Double Jeopardy

THANKS FOR PLAYING JEOPARDY!!

WE HOPE YOU HAD A FUN MATH CIRCLES EXPERIENCE ☺