IMSANITY 2
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-ROUND 13-

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Tossups

(1) The total variety of this quantity measures the difference between the sum of angles of triangles embedded on surfaces and one hundred eighty degrees by the Gauss-Bonnet Formula. Spherical and hyperbolic spaces can be distinguished based on whether this quantity is positive or negative. For a plane curve, this quantity can be computed as the absolute value of the second derivative divided by the quantity one plus the first derivative squared end quantity to the three-halves power. The radius of the osculating circle is the reciprocal of this quantity. For ten points, name this quantity that measures how much a surface bends.

ANSWER: curvature

(2) Seven candlesticks in this book represent seven churches of Asia that are encouraged to remain faithful. God says in this book, "I am Alpha and Omega, the First and the Last." Jehovah's Witnesses use this book as their source that only 144,000 will be saved. This book was supposedly written on the isle of Patmos and features the coming of the Whore of Babylon. Seven trumpets are blown by angels after the opening of the seventh seal. Written by John and featuring four horsemen, for ten points, name this final book of the New Testament that features the second coming and the apocalypse.

ANSWER: Book of the Revelation to John (do not prompt on or accept "Revelations")

(3) This poet asks "Do ye hear the children weeping, O my weeping brother/Ere the sorrow comes with tears?" in *The Cry of the Children.* This poet wrote that "unlike are we, unlike, O princely Heart," and another poem of this author ends with "the silver answer [ringing] - 'Not Death, but love." The speaker of that poem mentions how "I thought once how Theocritus had sung." Another poem by this poet begins with "Yes, call me by my pet-name" while her most famous poem starts with the query, "How do I love thee? Let me count the ways." For ten points, name this Victorian poet of *Sonnets from the Portuguese.*

ANSWER: Elizabeth Barrett Browning

(4) This man stated that the three pillars of a sect he created were altruism, order, and progress. He created a thirteen-month calendar that included month names like Moses and Homer for that sect, the Religion of Humanity. This thinker created three steps - fetishism, polytheism, and monotheism - in a phase in which primitive man explained nature with divinity; he described this phase as theological or fictitious. That was part of his theory on human thought, the Law of Three Stages. He discussed the concept of "Queen Science" in his work *The Course in Positivist Philosophy.* For ten points, name this French philosopher who founded positivism and the branch of sociology.

ANSWER: Auguste Comte

(5) This is the number of atoms contained per unit cell in a face-centered cubic system. According to ligand field theory, this is the expected number of ligands around the zinc complex when excess hydroxide ion is added to zinc metal. The Stefan-Boltzmann Law relates the energy output of a black body to this power of the temperature of the blackbody. Steroids are composed of this many cycloalkane rings. It is the number of carbon atoms in butane, and is the steric number of a sp_3 hybridized molecule. For ten points, name this number of hydrogen atoms bonded to the carbon atom in methane.

ANSWER: four

(6) The background of this painting is dark but reveals a few rows of people sitting. There are two men standing in the doorway behind the central action. Dr. Franklin West is located in the left background, behind the title character, writing notes on a small podium. A table in the left foreground holds a variety of metal instruments, and a woman shields her eyes in horror at the central action. The titular character of the painting is lecturing at the Jefferson Medical College, while four men next to him perform femur surgery. For ten points, name this painting by Thomas Eakins.

ANSWER: The Gross Clinic

(7) This work says that the rich should give "not only in proportion to their revenue, but something more in proportion" in its last book. One politician criticized this work's opposition to tariffs in the *Report on Manufactures*. It comes to the same conclusion as its author's earlier work, *Theory of Moral Sentiments*, in justifying individuals acting selfishly by claiming that individuals promoting self-interest will end up promoting the collective interest. It included an example of how the division of labor has vastly improved production of a pin factory. Famously developing the concept of the "Invisible Hand," for ten points, name this 1776 work of laissez-faire economics by Adam Smith.

ANSWER: An Inquiry into the Nature and Causes of the Wealth of Nations

(8) This person denounced the Earl of Manchester and was a leading a proponent of the Self-Denying Ordinance, which forced Manchester to resign. During his rule, John Lambert drafted the Instrument of Government, which dissolved the Nominated Assembly, also known as Barebone's Parliament. This victor at the Battle of Marston Moor and Naseby was succeeded by his son Richard, who ruled for only a year. In the Long Parliament, he instituted Pride's Purge to create the Rump Parliament, which he later dissolved after the execution of Charles I. He earned the nickname "Old Ironsides" as leader of the New Model Army. For ten points, name this first Lord Protector of England.

ANSWER: Oliver Cromwell

(9) One structure in this organ is composed of cells that contain about fifty percent of the human body's monocytes and also contains fibrils; that structure is the Cords of Billroth. Along with the kidney, this organ contains Malphigian corpuscles. Removal of this organ can lead to increased susceptibility to infection by bacteria and protozoans and diminished responsiveness to some vaccines. This organ is composed mostly of red pulp and white pulp, the latter of which is responsible for antibody synthesis. For ten points, name this lymphoid organ, whose primary function is to filter and store blood cells.

ANSWER: spleen

(10) One of this author's protagonists has a son named Anand who is frightened by the death of their dog; that protagonist earlier loses a calf, leading to the drowning of his father. One of this author's works features a poet who has never written more than a line of poetry, B. Wordsworth. This author of *Miguel Street* wrote of the African dictator Big Man imprisoning the shopkeeper Salim in another work. His most famous character eventually becomes a journalist in Port of Spain and lives at Hanuman House with his wife Shama Tulsi. For ten points, name this Trinidadian author of *A Bend in the River* and *A House for Mr. Biswas.*

ANSWER: Sir Vidiadhar Surajprasad Naipaul

(11) One of this composer's characters is named M and receives a message saying "it is pointless to remember". His collaborations with Allen Ginsberg include basing his sixth symphony on *Plutonian Ode* and a chamber opera that takes its name from a phrase in *Howl*. Besides *Hydrogen Jukebox*, the text of the Bhagavad Gita is sung in its original Sanskrit in another of his operas, and the audience is free to enter and leave as they desire in another of his operas that lasts five hours. Those two works are part of a series of operas about men who changed the world which is known as his "Portrait Trilogy". For ten points, name this minimalist composer of *Satyagraha* and *Einstein on the Beach.*

ANSWER: Philip Glass

(12) A dimensionless number relating this quantity to inertial forces can be found by the product of amplitude of flow velocity and time period of oscillation over characteristic length, which is the Carpenter number. The parasitic form of this quantity consists of a form variety, skin friction, and an interference variety. This force's namesake coefficient depends on whether the fluid surrounding the object is undergoing laminar or turbulent flow, and at low Reynolds numbers, Stokes's law can be used to calculate this quantity for spherical object. Objects reach terminal velocity when the magnitudes of this force and gravity are the same. For ten points, name this opposing force an object experiences when it moves through a fluid, such as air, the opposite of thrust.

ANSWER: drag force (prompt on "air resistance" or "friction")

(13) This man almost became teammates with Willie Mays, but the New York Giants offered him $50 less per month than the team he went to instead. In 1957, he won his only Most Valuable Player award in addition to helping propel his team to a his only World Series championship. His most famous action came against the Dodgers' pitcher Al Downing and saw Bill Buckner nearly clearing the outfield wall, and two fans ran the bases with him afterward. The all-time leader in RBIs, for ten points, name this Braves outfielder nicknamed "the Hammer" whose longtime record of 755 career home runs was recently broken by Barry Bonds.

ANSWER: Henry "Hank" <u>Aaron</u>

(14) This author wrote a play in which Edgar and Alice draw their friend Kurt and daughter Judith into their marital bickering. Laura convinces the Doctor and the Pastor her husband is insane so she can choose what happens to Bertha in one play, and in another play, Agnes, the daughter of Indra, comes to Earth. This author of *The Father*, *The Dance of Death*, and *A Dream Play* wrote a play where Jacob Hummel helps Arkenholtz into the apartment where he sees the apparition of a milkmaid. In another work, after starting a hotel that fails, the valet Jean kills the protagonist's bird and gives her a razor blade. For ten points, name this Swedish author of *The Ghost Sonata* and *Miss Julie*.

ANSWER: Johan August <u>Strindberg</u>

(15) During the Bambatha Rebellion, this person led a group of stretcher-bearers, although he later opposed the Draft Ordinance of 1906. This man made a pact with Lord Edward Irwin and attended the Round Table Conference. This man's last words supposedly were "Oh God" after he was assassinated by Nathuram Godse. This man supported wearing khadi, or homespun cloth, and let a march to Dandi known as the Salt March. This man advocated Satyagraha and called for the British to "Quit India." For ten points, identify this non-violent leader of the Indian independence movement.

ANSWER: Mahatma <u>Gandhi</u> or Mohandas Karamchand <u>Gandhi</u>

(16) One of his consorts, Satyabhama, owns a jewel that produces one and a half tons of gold daily. Another one of his consorts, Rukmini, was due to be married to Shishupala before he kidnaps her at the wedding. All but one of his seven older siblings were killed by King Kamsa before he was born, and later this figure and that older brother kill him after a wrestling match. As a child in Brindavan, he uses the Govardhana hill as an umbrella to protect the gopis from a deluge and is famous for stealing butter. At Kurukushetra he gives the Kauravas his army in exchange for giving the Pandavas his counsel. For ten points, name this Hindu god and King of Dwarka who dictates the Bhagavad Gita to Arjuna.

ANSWER: <u>Krishna</u>

(17) This character loses the family Toyota dealership after his son embezzles money to fuel his cocaine habit. After a house fire kills Jill Pendleton, he reclaims his wife from Charlie Stavros. This character spends most of his life in Brewer, Pennsylvania married to Janice, who accidentally drowns his daughter Rebecca after he leaves them for Ruth Leonard. After having an affair with Nelson's wife Pru, this rival of Ronnie Harrison escapes to Florida where he dies from a heart attack after beating a teenager in basketball. For ten points, name this character created by John Updike who "runs", "is rich", and "is at rest".

ANSWER: Harry "Rabbit" Angstrom (accept any underlined part)

(18) This man won his party's nomination by defeating Frank Lowden after his predecessor said "I do not choose to run". As head of the U.S. Food Administration, this man provided food to Belgium during World War I. This man had the first Native American Vice-President, Charles Curtis, and this president signed the Norris-LaGuardia Act. A group led by Walter Waters opposed this president, but General MacArthur crushed that group, the Bonus Army. This president signed the Smoot-Hawley Tariff after the Crash of 1929. For ten points, name this president during the start of the Great Depression who was defeated by Franklin Roosevelt in the election of 1932.

ANSWER: Herbert Clark Hoover

(19) Dolomite is sometimes used as the liner to the vessel that houses this process, especially when there is high phosphorous content. This process is similar to the Siemens-Martin process, and it was eventually replaced by the open hearth furnace process. The container used to run this process is placed on trunnions, which allow the vessel to be tilted for pouring molten metal, and tuyeres in the bottom of the container that holds this process allow oxygen air to flow in to oxidize impurities in iron. Used to mass produce steel from pig iron, for ten points, name this industrial process named for the English inventor who developed it in 1855.

ANSWER: Bessemer process

(20) This composer idolized Mozart as his "Christ of music" and strove to imitate his style in a *Serenade for Strings*. The cellos and violas open one of his overtures with the *Troparion of the Holy Cross*, reflecting that piece's commission by the Cathedral of Christ the Savior. Literary works adapted to music by this composer include Pushkin's *The Queen of Spades* and *Eugene Onegin* as well as a notable fantasy overture on *Romeo and Juliet*. One of his ballets features a "Waltz of the Flowers" and the "Dance of the Sugar Plum Fairies", and another sees Odette transformed into the titular bird. For ten points, name this Russian composer of *The Nutcracker* and *Swan Lake*.

ANSWER: Pyotr Ilyich Tchaikovsky

(21) In special relativity, the Lorentz factor for reference frames in standard configuration is given
by the reciprocal of this power of one minus v squared over c squared. The root mean square
velocity of gas molecules is equivalent to this power of three times R times T divided by
molar mass. The escape velocity of a spherically symmetric orbiting body is equivalent to
this power of two times the product of the universal gravitational constant and the mass of
the center of orbit divided by the distance from the center of mass. For ten points, identify
this power which can be applied to length over gravitational acceleration to compute the
period of a pendulum.

ANSWER: one-<u>half</u>

Bonuses

(1) Kamante becomes the farm chef after he returns from the hospital and the deer Lulu comes
to live with them. For ten points each:
[10] Name this novel in which a coffee farm fails and Deny's Finch Hatton dies in an airplane
crash.
ANSWER: Out of Africa
[10] *Out of Africa* was written by this author and modeled on her own experiences in Africa.
She also wrote *Seven Gothic Tales* and *Shadows on the Grass*.
ANSWER: Isak Dinesen (or Karen von Blixen-Finecke)
[10] Dinesen was an author of this country whose other writers include Karl Gjellerup,
Henrik Pontopiddan, and Hans Christian Anderson.
ANSWER: Denmark

(2) Gustav Stresemann won the 1926 Nobel Peace Prize for helping this democracy prosper and
achieve stability. For ten points each:
[10] Name this German government founded after World War I that was plagued with
hyperinflation and later taken over by Hitler. It was named after the city where its national
assembly met.
ANSWER: Weimar Republic
[10] This "free city" was part of a namesake strip that Hitler wanted back because
it separated East Prussia from the rest of Germany. It was under League of Nations
protection, though, so it didn't need to worry.
ANSWER: Danzig
[10] This province of Germany tried to rebel against the Weimar Republic three times after
a plebiscite to join Poland failed, and eventually the League of Nations gave half of it to
Poland. The War of the Austrian Succession began after Frederick the Great invaded this
region.
ANSWER: Upper Silesia

(3) This red-sandstone building was built on the hill of the Assabica. For ten points each:
[10] Name this Moorish palace fortress overlooking Granada, Spain, that was conquered by
the Christians in the 15th century. Washington Irving compiled a collection of sketches and
stories titled *Tales of [this place]*.
ANSWER: Calat Alhambra
[10] After the conquest of Constantinople by Sultan Mehmed in 1453, this former church in
Istanbul became a mosque. Its name means "Holy Wisdom" in Greek.
ANSWER: Hagia Sofia
[10] This expressionist modern church, built by Le Corbusier in Ronchamp, France, features
undulating walls covered in sprayed concrete. It takes part of its name from a famous
cathedral on the Île de la Cité in Paris.
ANSWER: Notre Dame du Haut (do not prompt on or accept "Notre Dame")

(4) They are used in calculus because they make formulas pretty. For ten points each:

[10] Name this dimensionless unit of angle measure, equal to arc length over radius. Three-hundred sixty degrees is equivalent to two pi of these.

ANSWER: radians

[10] When x is measured in radians, the derivative of the sine of x is simply this function. By contrast, when x is measured in degrees, the derivative is pi over one-hundred eighty times it.

ANSWER: cosine of x

[10] When x is measured in radians, this is the limit as x approaches zero of the sine of x all over x.

ANSWER: one

(5) Africa has a lot of rivers. For ten points each:

[10] The two sources of this longest river form its Blue and White courses, and there were originally six cataracts along its lower course before the Aswan High Dam was built in southern Egypt.

ANSWER: Nile River

[10] This river's two eponymous countries were owned by the French and Belgians. It is the main waterway through Africa's central rain forest, and it passes through Kinshasa and Brazzaville before emptying into the Atlantic Ocean.

ANSWER: Congo River

[10] Victoria Falls, the largest waterfall in the world, lies on this river that forms Zimbabwe's northern border and flows into the Mozambique Channel.

ANSWER: Zambezi River

(6) Answer the following about the god Osiris for ten points each:

[10] This was the wife and sister of Osiris. After Osiris was chopped into pieces by Set, this goddess put him back together.

ANSWER: Isis

[10] This son of Osiris had his eye poked out by Set, but later avenged his father.

ANSWER: Horus

[10] Horus and Set were going to race on the Nile in two boats made of this material, but Horus won by painting his wood boat to look like a boat made of this material.

ANSWER: stone (accept equivalents)

(7) It led to Japan taking control of Korea and Manchuria. For ten points each:

△ [10] Name this 1905 war in which Japan won victories at Port Arthur and Tsushima against
a backward imperial power.

▽ **ANSWER:** Russo-Japanese War

[10] This was the last major land battle of the Russo-Japanese War, at which General
Alexei Kuropatkin's troops suffered ninety thousand casualties. Another faked incident at
the same location led to the Japanese occupation of Manchuria.

ANSWER: Battle of Mukden or Mukden Incident

[10] The Russo-Japanese War ended with this treaty that gave half of Sakhalin to Japan
among other gains. Teddy Roosevelt won the Nobel Peace Prize for helping to negotiate
this peace treaty.

ANSWER: Treaty of Portsmouth

(8) It describes a "pleasant morn of early fall / When Lee marched over the mountain-wall."
For ten points each:

△ [10] Name this poem in which the titular character commands Stonewall Jackson to "Shoot,

▽ if you must, this old gray head / But spare your country's flag."

ANSWER: Barbara Frietchie

[10] *Barbara Frietchie* was written by this author. He also wrote wrote *Telling the Bees* and
a poem that laments "It might have been!", *Maud Muller*.

ANSWER: John Greenleaf Whittier

[10] Whittier is also known for this poem which describes a world with "No cloud above, no
earth below." Based on a childhood blizzard, it is subtitled "A winter idyll."

ANSWER: Snow-Bound

(9) This law states that when a fluid speeds up there is an accompanying decrease in pressure.
For ten points each:

△ [10] Name this law which help explain how airplane wings generate lift.

▽ **ANSWER:** Bernoulli's Principle or Law

[10] Bernoulli's Principle can be explained in terms of this law, which explains the decrease
in pressure in terms of acceleration of the fluid volume. Stated as $F = ma$, this law implies
that an object will accelerate when a nonzero net force acts on it.

ANSWER: Newton's Second Law

[10] Bernoulli's Principle can be obtained by integrating equations named for this man
describing inviscid flow. The Navier-Stokes equations are equivalent to equations named for
this man when viscosity is zero.

ANSWER: Leonhard Euler

(10) Contrary to quizbowl belief, Beethoven did write some things that are not symphonies or piano sonatas. For ten points each:

[10] Beethoven's only opera is this two-act work in which Leonore disguises herself as the titular prison guard in order to free her husband Florestan.

ANSWER: Fidelio

[10] Beethoven also wrote this set of incidental music based on the Goethe play of the same name. This composition depicting the beheading of the titular Flemish nobleman is most known for its overture.

ANSWER: Egmont

[10] This type of work involves a keyboardist with an orchestra. The last of Beethoven's works of this type is his fifth one in E-flat, nicknamed *Emperor*.

ANSWER: piano concerto

(11) The role of women in Islam is controversial. For ten points each:

[10] It is not clear whether headscarves are required by this book, which says that women should dress modestly. This central Islamic text is divided into 114 suras and consists of revelations to Muhammed.

ANSWER: Qu'ran (or Koran)

[10] This is the only woman mentioned in the Qu'ran by name. She is the subject of the nineteenth sura, where she gives a virgin birth to her son Isa.

ANSWER: Maryam

[10] In one of these statements, Muhammed says that, "Such people as ruled by a lady will never be successful," implying that women cannot be good leaders. In general, this term refers to any saying attributed to Muhammed.

ANSWER: hadiths

(12) These works are often made up of multiple panels, and types of these include diptychs, triptychs, and polyptychs. For ten points each:

[10] Identify this type of artwork named for its position in a Church. The central panel in the *Ghent [one of these works]* is titled *The Adoration of the Lamb*.

ANSWER: altarpiece

[10] *The Ghent Altarpiece* is a work by this artist who featured a couple and a mirror in which the artist can be seen in his *The Arnolfini Wedding*.

ANSWER: Jan van Eyck

[10] This other altarpiece is a triptych, whose central panels depicts the moment before the annunciation to Mary. Its right-hand panel displays St. Joseph holding a metal tool in his hand constructing a wooden mousetrap. It was created by Robert Campin.

ANSWER: Merode altarpiece

(13) They develop to form a blastocyst and then become a fetus. For ten points each:

△ [10] Name this cell formed when a sperm and egg cell fuse together in sexual reproduction.

▽ **ANSWER:** zygote

[10] This structure is formed in embryonic development after formation of the blastula and is composed of the endoderm, mesoderm, and ectoderm. After this three-layered structure is formed, organogenesis occurs.

ANSWER: gastrula

[10] This process of asexual reproduction is responsible for developing a multicellular organism from the zygote. It consist of prophase, metaphase, anaphase, and telophase, and is the shortest part of the cell cycle.

ANSWER: mitosis

(14) It eventually involved 150,000 people in 27 states. For ten points each:

△ [10] Name this 1894 strike led by the American Railway Union that was broken when President Cleveland sent troops into Chicago.

▽ **ANSWER:** Pullman Strike

[10] This man was the leader of the American Railway Union. He also founded the International Workers of the World and ran for President as a Socialist several times.

ANSWER: Eugene V. Debs

[10] This lawyer quit his job as a corporate lawyer to defend Debs during his trial. He successfully got the conspiracy charge dropped, but Debs served six months for other charges. He also argued against William Jennings Bryan in the Scopes Monkey Trial.

ANSWER: Clarence Darrow

(15) The speaker of this poem urges the reader to "be not coy, but use your time," and claims

△ that "That age is best which is the first/When youth and blood are warmer." For ten points each:

▽ [10] Name this poem which begins with the line "Gather ye rose-buds while ye may/Old time is still a-flying."

ANSWER: To the Virgins, to Make Much of Time

[10] This Cavlier poet of *To the Virgins, to Make Much of Time* also wrote the Julia poems and wrote the line "get up, sweet slug-a-bed, and see" in his *Corinna's Going A-Maying*.

ANSWER: Robert Herrick

[10] This other Cavalier poet wrote the Lucasta poems and wrote the line "Stone walls do not a prison make/Nor iron bars a cage" in his *To Althea, from Prison*.

ANSWER: Richard Lovelace

(16) Identify the following films starring Marlon Brando for ten points each:

[10] Brando's first major role was as Stanley Kowalski in a film adaptation of this Tennessee Williams play.

ANSWER: A Streetcar Named Desire

[10] Brando's first Best Actor Oscar came for his portrayal of Terry Malloy in this film. Malloy works on a dock until he testifies against a mobster, but notes of his former boxing career that he "coulda been a contender".

ANSWER: On the Waterfront

[10] Brando refused the Best Actor Oscar for this Francis Ford Coppola film in which he starred as Vito Corleone, the Don of a crime family whose son Michael was played by Al Pacino.

ANSWER: The Godfather

(17) Answer the following about the Muslim conquest of Iberia for ten points each.

[10] The invasion led by Tariq ibn Ziyad first landed at this site, which was later renamed "Rock of Tariq" after him.

ANSWER: Gibraltar

[10] The Umayyads conquered Iberia from this Germanic tribe which took over Iberia after the fall of the Roman Empire. This kingdom collapsed to the invaders in under three years.

ANSWER: Visigoths

[10] After the Umayyads conquered Iberia, they invaded France, but were stopped at this battle by Charles Martel.

ANSWER: Battle of Tours (or Battle of Poitiers)

(18) This can be a synonym for "slant height" in pyramids, but is more commonly used in two-dimensional geometry. For ten points each:

[10] Identify this term for the line segment from the center of a regular polygon to the midpoint of one of its sides. It can also refer to the length of that segment.

ANSWER: apothem

[10] The apothem gives the radius of a circle drawn in this way with respect to the polygon.

ANSWER: inscribed (accept incircle)

[10] The area of a regular polygon can be computed as one-half times the apothem times this quantity, which measures the distance around the polygon.

ANSWER: perimeter

(19) In this novel, Gumercindo Tello is a Jehovah's Witness who offers to castrate himself in order to be acquitted of rape charges, and Genaro Jr. hires the protagonist to work at Radio Panamericana. For ten points each:

[10] Name this novel about Pedro Camacho and Mario Varguitas which contains soap opera descriptions that become "hopelessly jumbled," representing Mario's affair with the title character.

ANSWER: Aunt Julia and the Scriptwriter (or La tìa Julia y el escribidor)

[10] *Aunt Julia and the Scriptwriter* is a novel by this Peruvian author who also wrote of Santiago Zavala and Ambrosio meeting at a dog pound in his *Conversation in the Cathedral.*

ANSWER: Mario Vargas Llosa

[10] In this Vargas Llosa novel, Lituma is sentenced to ten years in jail for killing Chapiro in a game of Russian Roulette, forcing his wife Bonifacia to become a prostitute at the title location owned by Don Anselmo.

ANSWER: The Green House (or La Casa Verde)

(20) The ideal form of this for simple machines is a measure of the maximum possible increase in force possible. For ten points each:

[10] Name this dimensionless number, whose actual variety is the ratio of the output force to the force input.

ANSWER: mechanical advantage

[10] This kind of pulley does not move, and a single one has a mechanical advantage of one. It is used to change the direction of a force.

ANSWER: fixed pulley

[10] This kind of simple machine was used to draw up water, an idea attributed to Archimedes. It takes rotational motion and converts it into linear motion, and its mechanical advantage is based on the pitch.

ANSWER: screw

(21) It used to be called Siam. For ten points each:

[10] Name this Southeast Asian nation that is ruled by the Chakri dynasty, with capital at Bangkok.

ANSWER: Thailand

[10] This is the name of the last nine kings in Thailand, including the current king who has ruled since 1946, longer than any other living monarch.

ANSWER: Rama

[10] Yellow Shirts were supporters of a Thai Prime Minister who was overthrown in a 2006 coup. In July, his younger sister won general elections and became Prime Minister. Name either of the two aforementioned Prime Ministers.

ANSWER: Thaksin Shinawatra or Yingluck Shinawatra (accept any underlined portion)