

NEW TRIER VARSITY 2009

ROUND 2



1. This quantity can be measured with a Fabry-Pérot pendulum, while its Gaussian version is the square root of the quantity typically referred to by this name. A better-known experiment for determining this value was originally conceived to measure the density of the earth; it used two large lead balls connected to a torsion balance, and was conducted by Henry Cavendish. It also appears as the constant of proportionality in an inverse-square law named for Newton. Name this constant that, in units of kilogram meters squared per second squared, is approximately equal to 6.67 times ten to the negative eleven.

ANSWER: universal **gravitational** constant [accept **big G**; prompt on **G**; accept **Newton**'s constant before "Newton"]

2. This major battle took place soon after the defeat of Othman ben abi Neza by the invaders and Lantfrid by the defending commander. Eudo, the earlier victor at the Battle of Toulouse who was also known as Odo the Great, submitted to another leader after losing at the River Garonne. Though this battle actually took place at Moussais-la-bataille, it is commonly referred to by the location of the wealthy abbey the invaders wished to loot. A Frankish square of heavy infantry repulsed cavalry attacks by the invading Moors. Name this battle in which Abd er-Rahman was defeated by Charles Martel to halt Arab expansion into Europe in 732 CE.

ANSWER: Battle of **Tours** [accept **Poitiers**]

3. An early essay by this writer anticipated the technophobia of his later characters, like Nosnibor; it concerned artificial intelligence and was entitled "Darwin Among the Machines". In this author's first novel, Nosnibor is recovering from the illness of being a criminal when he meets Higgs, the work's protagonist. His last novel has a protagonist who marries his parents' polygamist servant Ellen and is narrated by Overton; it follows the life and family of Ernest Pontifex. Name this author of *The Way of All Flesh* and the anagrammatically titled *Erewhon*.

ANSWER: Samuel **Butler**

4. President Obama answered seven questions from this nation's *Generation Y* blogger, who claimed that she was detained under its dangerousness law. A group of sixty prominent African-Americans in the US signed a statement condemning this government's race record and its treatment of medical activist Darsi Ferrer, and the company Development Alternatives claims that this country's government arrested one of its subcontractors. Walter and Gwendolyn Myers recently admitted that they spied for this country while working for the US State Department. A bill sponsored by Bill Delahunt and Jeff Flake would ease restrictions on US citizens who want to travel to this country. The current President of this country took over from his brother in 2006. Name this island nation currently headed by Raúl Castro.

ANSWER: Republic of **Cuba** [or República de **Cuba** (KOO-bah)]

5. This man conspired with Edward Rutledge to have South Carolina's electors determine one election. He toured New England campaigning for Charles Pinckney, and he gave an endorsement in a letter *Concerning the Public Character and Conduct of John Adams*. Damaged by his affair with Maria Reynolds, he had a namesake tariff that went into effect in 1789, and he was also responsible for the 1791 Whiskey Tax and the First Bank of the U.S. With James Madison and John Jay, he contributed to the *Federalist Papers*. Killed in a duel with Aaron Burr, name this Federalist who was the first Secretary of the Treasury.

ANSWER: Alexander **Hamilton**

6. In one story, this god consumed a special food doused in snake poison that made him invincible. After receiving a wound from a sword formerly guarded by Mimingus, Boe avenged his death. The god of justice, Forseti, was the son of this deity with Nanna. His hall was Breidablik, or “broad splendor”. His ship, Hringhorni, was the largest in the world, but it was set alight by Hyrrockin as it was pushed out to sea with his corpse on it. His mother, Frigg, failed to procure a promise from mistletoe, and this fact led to the death of Hodur, who chucked a sprig of it at this god at the insistence of Loki. Name this Norse god of beauty and light.

ANSWER: Baldur

7. Many textbooks give this group’s elements’ electron affinities as extremely endothermic, but recent research revealed that their ions are stable and that the correct electron affinities for this group are quite low. These elements are soluble in ammonia, and act as reducing agents. Their affinity for water is so strong that many of their salts crystallize into hydrates, such as Epsom salt and gypsum, their sulfates. Because of their high electropositivity, this group’s elements generally form plus-two ions. Name this group of silvery, soft metals that includes radium, strontium, barium, calcium, magnesium, and beryllium; group IIa on the periodic table.

ANSWER: alkaline earth metals [or alkaline earth elements; do not accept or prompt on answers mentioning “alkali”; do not accept or prompt on partial answers; accept Group IIa elements before mentioned]

8. This man wrote about simplicity and fruitfulness in his essay “The Methodology of Positive Economics”. He suggested that the nominal interest rate be set to zero in his namesake rule and said that banks should increase the money supply every year in his k-percent rule. He argued that Keynesian economics result in stagflation on his program *Free to Choose*, and he wrote that inflexible monetary policy during the 1920s caused the market crash in a work he coauthored with Anna Schwartz. This winner of the 1976 Nobel Prize in Economics also held a belief that money supply determines the direction of a nation’s economy. Name this author of *A Monetary History of the United States*, a leading monetarist from the Chicago school.

ANSWER: Milton Friedman

9. This man wrote two poems about his girlfriend’s pet sparrow, one bemoaning the fact that the sparrow got to play with her and he didn’t, and another about the death of the bird. He also penned some scathing poems about acquaintances he had, a less obscene one of which involved a napkin stolen by Asinius Marrucinus. Some of his nicer poetry was addressed to his special lady asking to “Let us live” and “Let us love”, in addition to requesting exactly 3,300 kisses, then requesting that they all be mixed up so no one will be jealous of “how many kisses [they] have shared”. Penning the famous words “Odi et amo”, identify this Golden Age Roman poet who wrote of his love for Lesbia.

ANSWER: Gaius Valerius Catullus

10. The synthesis of this molecule is described by the Boyer model, and takes place by beta units switching between “tight” and “loose” configurations in its namesake enzyme, which consists of a knob, rod, and rotor. It is produced especially quickly in cells with myoglobin. Its most important function can be catalyzed by polynucleotide kinase, and involves the breaking of one phosphate bond to release energy. Name this molecule produced in the Krebs cycle, the “energy currency” of cells.

ANSWER: ATP [or adenosine 5’ triphosphate]

11. This man’s supporters included August Scheurer-Kestner and Georges Picquart. Bernard Lazare supported him by putting his handwritten notes on posters. An open letter supporting this man was later published on the front page of *The Aurora*, selling over two hundred thousand copies and swaying public opinion. This man served a ten-year sentence on Devil’s Island despite the fact that the crimes he was accused of were actually committed by Ferdinand Esterhazy, who was never found guilty of treason. Name this French officer from Alsace supported by Emile Zola whose trial is considered a case of anti-Semitism.

ANSWER: Alfred Dreyfus

12. In one of this man's works, a civil servant believes himself to have intercepted love letters between two dogs that are having an affair. That same titular character also took part in an imaginary coronation ceremony when he thought himself heir to the throne of Spain. Another of this author's works sees the a corrupt Mayor bamboozled by a man named Khlestakov. He is probably most famous for his sometimes silly short stories including one where a man's nose comes off his face and runs away. Identify this author and playwright behind *Diary of a Madman*, *The Inspector General*, *Dead Souls*, *The Overcoat*, and *The Nose*.

ANSWER: Nikolai Vasilievich Gogol

13. This set, a commutative monoid, is the domain of Landau's function as well as of the totient (TOH-shent) function, and numbers of this type can be written as the sum of other numbers of this type via a partition. According to the well-ordering principle, any subset of this set contains a least element. Multiplication and addition on this set are recursively defined along with a successor function by the Peano axioms. According to the Archimedean property, there exists one of these numbers larger than any given real number; and all inductive sets contain these numbers as a subset. Contained in both the rationals and the integers, name this set of the positive integers, denoted **N**.

ANSWER: natural numbers [or naturals; accept **N** before the end; prompt on integers; accept positive integers or nonnegative integers before "positive integers"; accept whole numbers before the end]

14. The last recorded philosopher who adopted views associated with this school was Sallustius of Emesa. Hipparchia was a notable female member of this school of philosophy, and she married Crates of Thebes, a better-known advocate. Autarkia and Askesis are two concepts associated with this school, in addition to Shamelessness. Socrates' pupil Antisthenes was probably the first to outline the views associated with this school, although a man who lived in a barrel and held a lamp up in search of an honest man is more famous. Name this Greek school of philosophy which holds that one should attain Virtue by living a life free from possessions and in harmony with Nature, associated with Diogenes of Sinope (SI-nohp).

ANSWER: Cynicism

15. Like sulfuric acid, this substance is used as a catalyst in the alkylation of isobutane. When used with antimony trifluoride to treat chloroform, Teflon is created. This chemical is prepared by reacting its anion's namesake mineral with sulfuric acid, or as a byproduct in the creation of phosphoric acid. It does not completely dissociate in water, so it penetrates skin very easily, reacting with calcium to dissolve bone. Because of the very low entropy of hydration for its anion, despite being incredibly corrosive, it is a weak acid; that high strength comes from the strongest-known bond with hydrogen. Stored in Teflon containers, name this haloacid used to etch glass, with formula HF.

ANSWER: hydrofluoric acid [accept **HF** before the end; accept aqueous hydrogen fluoride]

16. This composer's opera *Agrippa* was re-discovered in 2006, and he composed three concertos for soprano recorder that are often played on the piccolo today. This early proponent of the clarinet composed a three-act opera adaptation of the Ludovico Ariosto epic *Orlando Furioso*, but he is more famous for more than 300 concertos, including a set from *The Contest Between Harmony and Invention* that opens with the composer's own poetry and includes *La Primavera*. Identify this prominent Venetian baroque red-headed orphanage teacher, the composer of *The Four Seasons*.

ANSWER: Antonio Lucio Vivaldi

17. An early situation in this series sees a cat named Tora being captured by three children, who return it only to find that their next job is babysitting. Minor characters in this series include a sunglasses wearing man who can create a swarm of crows out of thin air, Aoba, and another who can summon a conch shell mace and wears a bandage on his nose, Kotetsu. In this series, one character enjoys frequenting the Ichiraku Ramen Bar in Hidden Leaf Village, and another, green-clad, character with very bushy eyebrows named Rock Lee is very good at taijutsu. Seeing the title character have the Nine-Tailed Demon Fox sealed within him, identify this manga and anime series which follows the titular, orange-clad ninja along with his friends Sasuke (SAHS-kay), Sakura and Kakashi.

ANSWER: **Naruto**

18. One of this poet's collections contains a poem inspired by a sunflower in a railyard and another poem describing himself as nearsighted and psychopathic addressed to America. Another one of his poems begins "Strange now to think of you, gone without corsets & eyes" and was composed in memory of his mother. Another poem by this man sees Garcia Lorca "down by the watermelons" and Whitman "eyeing the grocery boys". Penning that poem, "A Supermarket in California", as well as the line "I saw the best minds of my generation destroyed by madness...", identify this man who wrote, among other things, the poems "Kaddish" and "Howl".

ANSWER: Irwin Allen **Ginsberg**

19. This artist created *Lying Cows* and *Bulb Fields*, as well as a painting of a room with a yellow vaulted ceiling and with open red doors. In addition to *Entrance of the Hospital*, he painted a series of portraits of the Roulin family; and two of his most famous works incorporate clocks that read 7:00 and 12:15. Notable for a depiction of four ugly peasants sitting around a table, a room highlighted by a billiards table in the middle, and a cypress tree overlooking Saint-Rémy, this artist only painted for a decade. Name this red-headed Dutchman who painted *The Potato Eaters*, *The Night Café*, and *Starry Night*.

ANSWER: Vincent **van Gogh**

20. The Portuguese used an old Almoravid city to build a fortress at this location in 1515. One of its suburbs, Anfa, was the site of a conference at which Henri Giraud and Charles de Gaulle vied to be recognized as the head of the Free French Forces and the Allies agreed to seek an unconditional surrender by the Axis Powers. More recently, a mosque inspired by King Hassan the Second was completed on this city's Atlantic Ocean coast in 1993. This city was the site of suicide bombings in 2003 and 2007 by residents of nearby Sidi Moumen, both of which drew strong reactions from King Mohammed VI. It is the largest port in Northern Africa and the most populous city in Morocco. Name this city whose name means White House.

ANSWER: **Casablanca**