

1. **The Euler line passes through several distinctive points of one of these objects, while Ceva's theorem also applies to these objects. The area of one of these objects can be found by taking the square root of the (*) semi-perimeter times the difference of the semi-perimeter minus each side. That calculation is known as Heron's formula. A nine point circle can be drawn around one of the objects while the laws of sines and cosines also apply to these objects. For 10 points, name this polygon whose "right" variety conforms to the Pythagorean Theorem.**

ANSWER: triangles

064-10-19-11102

2. **This country's highest point is Nevado Ojos del Salado, found on its eastern border, and that mountain's range is responsible for the driest desert in the world, the (*) Atacama, in this country. Since 1990, this country's legislature has met in Valparaiso, a coastal city seventy-five miles north of its capital. For 10 points, name this country whose offshore holdings include Easter Island and which has a capital at Santiago.**

ANSWER: Republic of Chile [or Republica de Chile]

003-10-19-11103

3. **At age 19, this man started a successful business with his neighbor Maurice Clark, and, in a later business venture, bought out Clark and his brothers to expand his business. This man's namesake foundation was co-founded by his advisor Frederick Taylor Gates. The business practices of his company were the subject of an exposé by Ida Tarbell. This man's grandson served as (*) Gerald Ford's Vice President. This competitor of Andrew Carnegie founded the Standard Oil Company. For 10 points, name this oil magnate who may have been the richest American in history.**

ANSWER: John Davison Rockefeller

024-10-19-11104

4. **This man evoked the myth of Adam and Eve in such poems as "Kitty Hawk." Another poem describes how "magnified apples appear and disappear," and a third claims that "So Eden sank to grief, so dawn goes down to day." In addition to "After Apple Picking" and "Nothing Gold Can Stay," this man wrote about woods that are "lovely, dark, and (*) deep" in a poem whose speaker has "miles to go" before he sleeps. For 10 points, name this author of "Stopping By Woods on a Snowy Evening" who wrote in "Mending Wall" that "good fences make good neighbors."**

ANSWER: Robert Lee Frost

003-10-19-11105

5. **High temperature polymorphs of this mineral include tridymite (TRIH-dih-mite) and cristobalite (KRIS-toe-ball-ite). The alpha form of this mineral has a trigonal structure, while its beta form is hexagonal. When microscopic crystals of it are intermixed with mogánite, chalcedony (chall-SEE-dun-ee) results. Citrine is a yellow colored type of this mineral, and (*) amethyst is a purple one. Each of its oxygen atoms is part of two tetrahedrons. This mineral exhibits the piezoelectric effect. For 10 points, name this mineral that has an overall formula corresponding with silicon dioxide, and has a hardness of seven on the Mohs scale.**

ANSWER: quartz [prompt on silica; prompt on silicon dioxide; prompt on SiO₂]

001-10-19-11106

6. Before ascending to the throne, this ruler left the royal court for Syon House after John Churchill was stripped of his offices. The first ruler whose ascent occurred after the Act of Settlement, this sovereign restored the offices of a man implicated during Fenwick's conspiracy, Sidney Godolphin. The colonial portion of the War of the Spanish Succession was known as this monarch's war. This ruler became the (*) first sovereign of both Britain and Scotland under the Acts of Union. For 10 points, name this British queen who ruled from 1702 to 1714.

ANSWER: Anne of Great Britain

026-10-19-11107

7. This thinker was succeeded by Theophrastus (THEE-oh-FRASS-tuss) as leader of his school. Commentaries on his work form the bulk of the philosophy of Averroes (AH-vuh-ROE-ess). He named his major work on ethics after his son, and he put forth the "impetus" theory of motion in his *Physics*. This leader of the Peripatetic school was a (*) tutor of Alexander the Great, and himself was a student of Plato. For 10 points, name this ancient Greek, whose *Politics* and *Nicomachean Ethics* are foundational texts of philosophy.

ANSWER: Aristotle [or Aristotles]

019-10-19-11108

8. An error in the synthesis of this protein causes Ehlers-Danlos syndrome. Other than elastin, it is the only human protein to contain hydroxyproline. Every third amino acid in its main helix is a glycine. This protein forms a triple helix which then forms a fibrous structure in extra-cellular spaces. (*) Gelatin is made by hydrolyzing this protein. It is a major component of cartilage. It is the most abundant protein in the human body. For 10 points, name this protein found in the skin and the tendons.

ANSWER: collagen

024-10-19-11109

9. This religion's marriage ceremony includes the engagement ritual Kurmai, which involves the singing of wedding hymns, or *laavas*. Practitioners of it demonstrate *kesh* and wear an iron bracelet called a *kara*. The sacred song (*) "Japji Sahib" follows the Mul (mool) Mantra in its sacred text, which was compiled by this religion's fifth leader, Arjun Dev Ji. That book, the *Adi Granth*, contains many sayings of this religion's founder Guru Nanak. For 10 points, name this north Indian religion, which blends Hindu and Muslim traditions.

ANSWER: Sikhism

083-10-19-11110

10. Franz Liszt created six piano etudes based on works by this man, including "La Campanella." This man commissioned Berlioz's *Harold in Italy*, but refused to play it because there were too many rests. His twenty-fourth caprice in A minor served as the basis for both Brahms's books of *Variations* named after this man and Rachmaninoff's (*) *Rhapsody on a Theme of* this man. This man's ability was later attributed to Ehlers-Danlos syndrome, which increases joint flexibility, rather than a deal with the Devil. For 10 points, name this legendary nineteenth century Italian violin virtuoso.

ANSWER: Nicolo Paganini [or Niccolo Paganini]

003-10-19-11111

11. On one show, this comedian was the original host of "This Week in God." In 2008, this figure challenged the Korean pop star Rain to a dance-off. Other running gags on his show include cursing Barry Manilow for stealing his Emmy and exaggerating the fearsomeness of "BEARS" on the (*) "Threat-Down." This man satirizes right-wing talk shows like *The O'Reilly Factor* on his own spoof news show, which follows Jon Stewart's. For 10 points, name this comedian with a namesake "Report" (re-POR) on Comedy Central.

ANSWER: Stephen Colbert

080-10-19-11112

12. This character is enslaved by Turks at Salée in his early life, and is later put ashore in China by shipmates who are annoyed by his chastising them over a massacre. He encounters a Spaniard while investigating a report of cannibalism, which he hears from a figure who is eventually killed in a battle near Brazil. This man was based on the actual Alexander (*) Selkirk, and his adventure takes a turn in the seventeenth year when he meets Friday. For 10 points, name this sailor created by Daniel Defoe, who is marooned on a remote island in a namesake novel.

ANSWER: Robinson Crusoe [accept either name]

019-10-19-11113

13. Artists Georges Lemmen and Henry-Edmund Cross frequently used this technique, which was also used in the painting *Portrait of Félix Fénéon*, which is by Paul Signac. Closely associated with Neo-impressionism, this technique was also used to create a work depicting several people holding umbrellas, including a woman with a pet monkey. That work is by Georges Seurat and is titled (*) *A Sunday Afternoon on the Island of La Grande Jatte*. For 10 points, name this painting technique in which small dots are grouped together to form a larger picture.

ANSWER: pointillism [prompt on Neo-impressionism before it is read]

083-10-19-11114

14. In the first act of this opera, the housekeeper Berta lets in a man acting like a drunken soldier, who is not arrested when he reveals his identity to the police. That disguised character also pretends to be the student Lindoro and the music teacher Don Alonso, the latter in place of Don Basilio. The title character of this opera is first seen singing about his importance in the aria (*) "Largo al factotum." For 10 points, name this Rossini opera in which Don Bartolo's ward Rosina is married to Count Almaviva through the trickery of the title servant, Figaro.

ANSWER: *The Barber of Seville* [or *Il Barbiere di Siviglia*]

023-10-19-11115

15. One opponent of this policy made the "I am prepared to die" speech during the Rivonia Trial. Aspects of this policy included the Group Areas Act and the Terrorism Act, the latter of which led to the arrest and death of Stephen Biko. It resulted in the creation of Venda, Ciskei (SIS-kay), and other Bantustans. Opposition to this policy resulted in the Sharpeville massacre and the Soweto uprising in (*) Johannesburg. It ended in 1994, allowing for the election of Nelson Mandela. For 10 points, name this policy of racial segregation in South Africa.

ANSWER: apartheid

024-10-19-11116

16. In one work by this man, Land Development Syndicate employee Tom Broadbent gives Matt Haffigan's pig a ride in his motorcar. In addition to *John Bull's Other Island*, this man wrote a play in which the arms manufacturer Andrew Undershaft's ideals are contrasted with the title character's work for the Salvation Army. This author of *Major (*) Barbara* also wrote about Henry Higgins' attempts to reform the flower girl Eliza Doolittle in another play. For 10 points, name this Irish playwright of *Pygmalion*.

ANSWER: George Bernard Shaw

030-10-19-11117

17. In developing information theory, Claude Shannon modified an equation that set this quantity proportional to the sum of the probability that a particle is in a particular microstate times the natural log of that probability. More commonly, that formula states that this quantity equals k times natural log of ω , a formula inscribed on Ludwig (*) Boltzmann's ("BOLTS"-mons) tombstone. The Second Law of Thermodynamics suggests that it never decreases in isolated systems. For 10 points, name this thermodynamic quantity that measures the disorder of a system.

ANSWER: entropy [or S]

084-10-19-11118

18. This man expressed concern about the title region losing its sense of community in *A Turn in the South*. In one novel by this man, the title character's father Raghu hoards his money so effectively that his family cannot find it after his death, leaving them destitute. The title character of that novel marries Shama Tulsi and tries to create a life apart from her family. Another of his novels is narrated by Salim, a (*) shopkeeper in a newly independent African country. For 10 points, name this author of *A House for Mr. Biswas* and *A Bend in the River*.

ANSWER: Vidiadhar Surajprasad Naipaul

030-10-19-11119

19. Veblen and Giffen goods are the only types of goods for which the price elasticity of this quantity is greater than zero. This quantity, on the macroeconomic level, is equal to the sum of consumption, government spending, investments and net exports, and is referred to as the (*) aggregate type. In microeconomics, the curve which graphs this quantity is downward-sloping. For 10 points, name this quantity from economics, often contrasted with supply.

ANSWER: demand [or aggregate demand]

084-10-19-11120

20. This emperor disbanded the Praetorian Guard and replaced them with the *Palatini Comitenses*. Before one decisive battle against Maxentius, this emperor saw a *chi rho* in the sky with the inscription "In this sign, you will conquer." After defeating his rival Licinius, this emperor made Byzantium his capital and renamed it after himself. This emperor convoked the (*) Council of Nicea and promulgated the Edict of Milan to increase religious toleration. For 10 points, name this fourth century emperor who ended the persecution of Christians.

ANSWER: Constantine I [or Constantine the Great; or Flavius Valerius Constantinus; prompt on Constantine]

080-10-19-11121

21. At one point, this work diverges from the plot to spend an entire chapter explaining the meaning of the sentence, "This will kill that," with "this" referring to the printing press. The antagonist of this work arranges with Jehan to view a love scene between two characters before stabbing the male and blaming it on the female. That antagonist, Claude (*) Frolo, is pushed off the title edifice by another character who witnesses him celebrating Esmeralda's death. For 10 points, name this work by Victor Hugo about Quasimodo, a bell-ringer in Paris's most famous cathedral.

ANSWER: Notre-Dame de Paris [or *The Hunchback of Notre-Dame*]

003-10-19-11122

22. In one of these texts, the title figure is blinded by bird droppings, and Sarah loses seven of her husbands to Asmodeus. In another of these texts, Judith saves the city of Bethulia by killing Holofernes. These texts include the Books of Wisdom and Tobit, as well as the (*) Deuterocanonical books. They are included in Roman Catholic bibles but usually excluded from Protestant ones. For 10 points, name these books of the bible not considered wholly canonical, whose name means "hidden."

ANSWER: Apocrypha

080-10-19-11123

23. Roy Sparkia and Renée Nemorov created the "Eight Wonders of the World" exhibition in the north corridor of this building's lobby. Its spire was augmented by a radio antenna in 1952, and was originally intended for use as a dirigible dock. This Art Deco skyscraper marked the death of Fay Wray by turning off its signature floodlights, and it surpassed the nearby (*) Chrysler Building as the tallest in the world when it was completed in 1931. For 10 points, King Kong climbed this building, the tallest skyscraper in New York City.

ANSWER: Empire State Building

020-10-19-11124

1. This religion's founder is the twenty-fourth Tirthankara, Mahavira. For 10 points each:

[10] Name this Indian religion whose adherents practice strict nonviolence.

ANSWER: **Jainism**

[10] This is the Sanskrit term for the principle of nonviolence central to many south Asian religions, especially Jainism.

ANSWER: **ahimsa**

[10] Digambara Jainist monks can be distinguished from their Svetambara counterparts because they Digambaras engage in this practice.

ANSWER: **nudity** [accept any reasonable equivalent, such as they **do not wear clothes**; or they are **nudists**; or **sky-clad**]

026-10-19-11201

2. This phylum's largest class is *clitella*. For 10 points each:

[10] Name this phylum of segmented worms whose members include earthworms and leeches.

ANSWER: **annelids** [or **annelida**]

[10] This Frenchman split up the generic "worms" category of invertebrates into "annelids," along with "arachnids," "echinoderms," and "crustaceans." He also devised a wrongheaded evolutionary theory centered on the inheritance of acquired traits.

ANSWER: Jean-Baptiste **Lamarck** [or Jean-Baptiste Pierre Antoine de **Monet**, Chevalier de la Marck]

[10] This phylum of "roundworms" includes the oft-used model organism *C. elegans*.

ANSWER: **nematodes** [or **nematoda**]

026-10-19-11202

3. These can be caused by underground chemical erosion processes in particular topographies. For 10 points each:

[10] Name these often damaging and dangerous natural depressions created through the dissolution of underground material called suffusion.

ANSWER: **sinkholes**

[10] Sinkholes often occur in this kind of topography, which contains layers of soluble bedrock like limestones and carbonate rocks. Parts of Florida exhibit this kind of topography.

ANSWER: **karst** topography

[10] Cenotes (say-NO-taze) are groundwater-filled sinkholes and are often found on this Mexican Peninsula. The Sacred Cenote at Chichen Itza (CHEE-chen EET-zuh) is one such example.

ANSWER: **Yucatan** Peninsula

084-10-19-11203

4. This character hopes that her daughter will grow up to be a "beautiful little fool." For 10 points each:

[10] Name this husband of Tom whose reckless driving causes the death of Myrtle Wilson.

ANSWER: **Daisy Buchanan** [accept either]

[10] Daisy Buchanan is the long-lost love of the title character of this F. Scott Fitzgerald novel, which is narrated by Nick Carraway.

ANSWER: *The* **Great Gatsby**

[10] In *The Great Gatsby*, the eyes of Dr. T. J. Eckleburg overlook this location, whose name was inspired by T. S. Eliot's *The Waste Land*.

ANSWER: the **valley of ashes**

026-10-19-11204

5. The main character of this work dies from a combination of hunger and an infection caused when his father threw an apple at his back. For 10 points each:

[10] Name this 1915 novella which opens with the salesman Gregor Samsa waking up and discovering he has turned into a giant bug.

ANSWER: *The Metamorphosis* [or *The Transformation* or *Die Verwandlung*]

[10] Prisoners have their sentences engraved into them by a machine in this author's short story "In the Penal Colony." He is also known for writing *Amerika* and *The Metamorphosis*.

ANSWER: Franz **Kafka**

[10] In this other Kafka novel, the bank clerk Joseph K. is arrested and killed a year later, during which time he finds out what he did wrong.

ANSWER: *The Trial*

083-10-19-11205

6. It is forged from the Rhinegold by Alberich the dwarf, and then taken by Wotan, who uses it to purchase the freedom of Freya. For 10 points each:

[10] Identify this object which Siegfried must ultimately take from the dragon Fafnir, in a namesake four-opera cycle.

ANSWER: the **Ring** of the Nibelung

[10] The *Ring* cycle was composed by this German, whose other operas include *Tannhauser* and *The Flying Dutchman*.

ANSWER: Wilhelm Richard **Wagner** (VOG-ner)

[10] Fafnir uses the Tarnhelm to become a dragon in the second opera of the cycle; the opera is named for one of these mythical women, whose dramatic "ride" appears near the start of the performance.

ANSWER: **Valkyries** [or die **Walküren**]

019-10-19-11206

7. She was canonized in 1920 on the basis of her conversations with Saint Margaret, Saint Catherine, and Saint Michael. For 10 points each:

[10] Name this martyr who was burned at the stake after leading French forces in the Hundred Years War.

ANSWER: **Joan of Arc** [or **Jeanne d'Arc**; or the **Maid of Orleans**; prompt on **Joan**]

[10] Joan supported the dauphin who would go on to become the seventh French king of this name. The second king of this name was known as "the Bald," and the tenth was replaced by Louis-Philippe.

ANSWER: **Charles**

[10] Joan was captured and sold to the British by forces from this kingdom, which collapsed after the death of its duke Charles the Bold in 1477.

ANSWER: Duchy of **Burgundy**

015-10-19-11207

8. This complex is entered through the Wu Gate and centered around the Golden Water River. It was commissioned by the Yongle emperor in 1420. For 10 points each:

[10] Identify this area surrounding the Hall of Supreme Harmony, which is named because none but the Chinese emperor had unrestricted permission to enter it.

ANSWER: the **Forbidden City** [or **Zijincheng**; or **Tzu-chin-ch'eng**]

[10] The Forbidden City is located within the former government district of this present-day, 22-million-person metropolis.

ANSWER: **Beijing** [or **Peking**; or **Pei-ching**]

[10] The Imperial City, which surrounded the Forbidden City, was entered through this "Gate of Heavenly Peace." The iconic 20-foot portrait of Mao attached to it overlooks a namesake plaza.

ANSWER: **Tiananmen**

019-10-19-11208

9. Gamal Abdel Nasser was one President of this nation. For 10 points each:

[10] Name this Middle Eastern nation that was also once led by Anwar Sadat, who was assassinated after signing a peace treaty with Israel.

ANSWER: Arab Republic of **Egypt** [or Jumhuriyat **Misr** al-Arabiyyah]

[10] Nasser was forced out of power after Egypt's loss to Israel in this 1973 war, typically named for a Jewish holiday.

ANSWER: **Yom Kippur** War [or **Ramadan** War; or **October** War; prompt on **1973 Arab-Israeli** War]

[10] Nasser was instrumental in creating this short lived union between Syria and Egypt.

ANSWER: **United Arab Republic** [or **UAR**]

064-10-19-11209

10. The photographer Man Ray depicted this artist as his alter ego Rrose Selavy. For 10 points each:

[10] Name this 20th century French artist responsible for such readymades as *Fountain*, which was a urinal signed R. Mutt, and a painting described as "an explosion in a shingle factory."

ANSWER: Marcel **Duchamp**

[10] That purported shingle factory explosion was this Cubist inspired painting by Marcel Duchamp, which depicts the central figure in motion down a titular conveyance.

ANSWER: **Nude Descending a Staircase** No. 2 [or **Nu descendant un escalier** No.2]

[10] Duchamp was closely associated with this 20th century artistic movement. Founded by such figures as Hugo Ball and Jean Arp at the Cabaret Voltaire, it expressed an "anti-art" aesthetic.

ANSWER: **Dada**

084-10-19-11210

11. Name these Christian sects founded in the nineteenth century, for 10 points each.

[10] Founded by William and Catherine Booth, this group is notable for its military structure and charitable activities, often soliciting donations around Christmas.

ANSWER: The **Salvation Army**

[10] Charles Taze Russell founded this evangelical group, which publishes *The Watchtower* and refuses to accept blood transfusions.

ANSWER: **Jehovah's Witnesses** [or The **Watchtower Bible And Tract Society**]

[10] This group, which arose out of the Millerites, believes that the "investigative judgement" began in 1844. Their name comes from the fact they celebrate the Sabbath on Saturday.

ANSWER: **Seventh Day Adventist** Church

082-10-19-11211

12. Answer the following questions about everyone's favorite detective, Sherlock Holmes, for 10 points each.

[10] The characters Inspector Lestrade, Dr. John Watson, and Sherlock Holmes were created by this Scottish writer.

ANSWER: Sir Arthur Ignatius Conan **Doyle**

[10] Sherlock Holmes first appeared in this 1887 novel, in which Holmes deduces that Jefferson Hope killed Joseph Stangerson and Enoch Drebber.

ANSWER: ***A Study in Scarlet***

[10] In this story, Jabez Wilson is hired by the titular agency in order to keep him out of his shop, allowing his assistant to tunnel into the bank next door. Wilson was hired due to a colorful trait.

ANSWER: "***The Red Headed League***"

083-10-19-11212

13. The title location of this novel is located at the Pension Bertolini in Florence. For 10 points each:

[10] Name this novel about Cecil Vyse and Lucy Honeychurch.

ANSWER: ***A Room with a View***

[10] This author of *Where Angels Fear to Tread* and *A Passage to India* wrote *A Room with a View*.

ANSWER: Edward Morgan **Forster**

[10] This Forster novel, whose epigraph is "Only connect," is about the Schlegels, who befriend the owners of the title estate.

ANSWER: ***Howards End***

024-10-19-11213

14. This composer included the bongo drums, maracas, and gourds in his 1932 *Cuban Overture*. For 10 points each:

[10] Name this musician, who collaborated with his lyricist brother Ira on the song "Summertime", from his opera *Porgy and Bess*.

ANSWER: George **Gershwin** [or Jacob **Gershwin**]

[10] Gershwin played the piano at the 1924 debut of this piece, which opens with a solo clarinet playing a glissando. Commissioned by Paul Whiteman and orchestrated by Ferde Grofé, it often represents New York in film.

ANSWER: ***Rhapsody in Blue***

[10] Taxi horns and the popular melody "La Maxixe" appear in this Gershwin piece, which represents a different city. Its loose program is about a café-goer overcoming a bout of homesickness.

ANSWER: ***An American in Paris***

019-10-19-11214

15. Answer these questions about post-World War II Greece, for 10 points each.

[10] With U.S. support, Greece joined this military alliance in 1952 that was opposed throughout the Cold War by the Warsaw Pact.

ANSWER: **NATO** [or **North Atlantic Treaty Organization**]

[10] A Greek military junta known as the Regime of the Colonels collapsed following the 1974 Turkish invasion of this island.

ANSWER: Republic of **Cyprus** [or **Kypriaki** Dimokratia; or **Kypros**; or **Kibris** Cumhuriyeti]

[10] The Regime of the Colonels overthrew the second Greek king with this name. The first Greek king of this name was criticized for his policy of neutrality during World War One.

ANSWER: **Constantine**

064-10-19-11215

16. For 10 points each, answer the following about Bernoulli trials.

[10] A Bernoulli trial is an event, such as a coin toss, in which this many outcomes are possible.

ANSWER: **two**

[10] The number of successes in n Bernoulli trials, each with probability of success p , can be modeled as this type of probability distribution.

ANSWER: **binomial** distribution

[10] The probability of k successes in n Bernoulli trials is p to the k times quantity one minus p to the n minus k , times this function of n and k .

ANSWER: n **choose** k [or **choose** function; or **nCk**; or **C of n comma k**; or **combination** function; prompt on **binomial coefficient**; do not accept anything containing the word "permutation"]

003-10-19-11216

17. This album was the first in which Johnny Greenwood played the ondes Martenot, and it used a Macintosh to create the voice in "Fitter Happier". For 10 points each:

[10] Name this 1997 alternative rock album, which contains the tracks "Karma Police" and "Paranoid Android"

ANSWER: ***OK Computer***

[10] *OK Computer* was the product of this Thom Yorke-fronted band, who released their 2007 album *In Rainbows* as a pick-your-price download.

ANSWER: **Radiohead**

[10] Radiohead's name was inspired by a song by this David Byrne-led band of "Psycho Killer" and "Once In A Lifetime".

ANSWER: **Talking Heads**

082-10-19-11217

18. While serving as governor, this man issued a declaration stating that Sacco and Vanzetti had been given an unfair trial, and, while running for president, he had an awkward photo-op in an M1 Abrams tank to highlight his national security credentials. For 10 points each:

[10] Name this Greek-American governor of Massachusetts who picked Texas Senator Lloyd Bentsen to be his running mate in the 1988 presidential election.

ANSWER: Michael Stanley **Dukakis**

[10] In the 1988 vice presidential debate, this Indiana senator and Republican vice-presidential candidate compared his experience to that of John F. Kennedy. Bentsen responded by telling this eventual Vice-President to George H.W. Bush, "Senator, you're no Jack Kennedy."

ANSWER: Dan **Quayle** [or James Danforth **Quayle**]

[10] This man was serving a life sentence for murder in Massachusetts when he raped a woman during a weekend furlough from prison. Since this occurred while Dukakis was governor of Massachusetts, it became a key issue in the 1988 election.

ANSWER: William R. **Horton**

030-10-19-11218

19. Answer the following about waves, for 10 points each.

[10] This type of wave, contrasted with longitudinal or "compression" waves, consists of oscillations that occur perpendicular to the direction of wave motion.

ANSWER: **transverse** waves

[10] A wave's frequency, or cycles per second, is measured in this SI unit.

ANSWER: **hertz** [or **Hz**]

[10] This French physicist proposed that all moving objects have a wavelength, which can be found by dividing Planck's ("PLONK's") constant by the object's momentum.

ANSWER: Louis de **Broglie** (LOO-ee duh BROY)

026-10-19-11219

20. For 10 points each, name these psychologists who created stages of development:

[10] The oral stage is the first stage of this Austrian psychologist's theory of psychosexual development.

ANSWER: Sigmund **Freud**

[10] This Swiss psychologist is best known for his four stages of cognitive development, which begins with the sensorimotor stage and ends with the formal operational stage.

ANSWER: Jean **Piaget**

[10] This American psychologist used Piaget's ideas as the basis for his stages of moral development, which include the pre-conventional, conventional, and post-conventional stages.

ANSWER: Lawrence **Kohlberg**

083-10-19-11220

21. He signed the Treaty of Wedmore after defeating the Danish king Guthrum at the Battle of Eddington.

For 10 points each:

[10] Name this ruler of the Anglo-Saxons and only English king to receive the epithet "the Great."

ANSWER: **Alfred** the Great

[10] This descendent of Alfred had less luck against foreign invaders and was given the epithet "the Unready" after frequently bribing the Danes.

ANSWER: **Ethelred** the Unready [or **Ethelred II**]

[10] Ethelred's son Edmund Ironside was unable to stave off this Danish king, who began 24 years of Danish control of England after taking the throne in 1016.

ANSWER: **Canute** the Great

015-10-19-11221