

1. **This shape is a a Dupin cyclide of characteristic one comma one. Like the Klein Bottle and cylinder, it has an Euler characteristic of zero, and the ordinary one has a genus of one. According to the Heawood conjecture, it can be colored with seven colors. It can be described as the (\*) Cartesian product of two circles. It can be constructed by gluing the opposite edges of a rectangle together with no twists. For 10 points, name this donut-shaped mathematical surface.**

ANSWER: torus

024-10-19-13102

2. **This author wrote a story in which Ezra Buckley invents a planet based on Berkeleian idealism, which leaks *hronir* into the real world. He anticipated hypertext literature in his story about an infinite labyrinth contained in a book by Ts'ui Pen. This author of the stories "Tlön, Uqbar, Orbis Tertius" and "The Garden of (\*) Forking Paths" also wrote a story about an infinite series of rooms whose shelves hold books containing every possible combination of letters. For 10 points, name this author who included "The Library of Babel" in his collection *Ficciones* (fic-SYOHN-es).**

ANSWER: Jorge Luis Borges

004-10-19-13103

3. **The speaker of one section of this book will “tear you to pieces, with none to rescue” if you don’t consider his proposal. The “sons of Korah” are responsible for portions of this book. Other subsets of this book include the Song of Ascents and the Hallel. Orthodoxy highly regards the portion that begins with “Miserere.” Another portion describes a figure who “leadeth me beside the still waters” and notes “my (\*) cup runneth over,” comparing the lord to a shepherd. For 10 points, identify this book which was largely authored by David and consists of 150 songs.**

ANSWER: Book of Psalms [or Tehillim]

020-10-19-13104

4. **Fetuses possess a type of this called lanugo. This develops from a structure with a root sheath and important stages in its growth are catagen and anagen. Like skin, the MC1R gene is important in determining one property of it and (\*) DHT can cause a decrease in the amount present. The agouti gene is important in its coloration in some animals and different forms of melanin color it in people. Like nails, this material is made from keratin. This grows from follicles. For 10 points, name this material, a unique characteristic of mammals, which in humans is most prominently seen on the head.**

ANSWER: hair [or fur]

001-10-19-13105

5. **During this king’s reign, Scotland honored the Auld Alliance by invading England, but Thomas Howard repulsed them at the Battle of Flodden Field. This king faced a rebellion called the Pilgrimage of Grace and issued the Act of Supremacy. This monarch was advised by Thomas Cromwell after a break with his former advisor Thomas More, whom he had beheaded. Succeeded by his young son (\*) Edward VI, this monarch formed the Anglican Church in order to divorce his wife Catherine of Aragon. For 10 points, name this king, Elizabeth I’s father, who had six wives.**

ANSWER: Henry VIII of England

080-10-19-13106

6. This artist painted *Still Life: Piece of Beef* and he depicted a scene with many people holding French flags out of buildings in *The Rue Montorgueil*. This man did several series of paintings on the same structures at different times and days, such as the *Houses of Parliament* and the *Rouen Cathedral*. He also did many depictions of *Haystacks* and (\*) *Water Lilies*. For 10 points, name this French painter of *Impression: Sunrise*, a painting which gave its name to the Impressionist movement.  
ANSWER: Claude Monet

001-10-19-13107

7. This architect designed a bandshell that uses a steel trellis to extend a sound system over the seated audience and the Great Lawn. He worked with Vlado Milunic on the Dancing House in Prague in addition to designing the Pritzker Pavilion in Millennium Park. Working alongside Esa-Pekka Salonen, this man created a concert hall in (\*) Los Angeles out of steel shells, and he also built a ship-like museum on the Nervion River with titanium panels that reflect light like fish scales. For 10 points, name this American architect of the Walt Disney Concert Hall and the Guggenheim Bilbao.  
ANSWER: Frank Gehry

080-10-19-13108

8. The music video for this song starts with the singer being placed down as a board game piece and ends with the singer defeating an army of gummi bears. The singer notes in the first verse that "the boys break their necks try'na creep a little sneak peak" at the title people. Those people have (\*) "sun-kissed skin so hot" they will "melt your popsicle." For 10 points, name this song that describes people from a certain state that wear "daisy dukes" and "bikinis on top," which features Snoop Dogg and is sung by Katy Perry.  
ANSWER: "California Gurls"

023-10-19-13109

9. In one of this man's works, the fifth and final canzone (cahn-DZO-nay) is interrupted at the death of its subject. He wrote that Eden was found on top of a mountain in the southern hemisphere in a work which used terza rima and was written in his native Tuscan dialect, like the aforementioned *La Vita Nuova* (lah VEE-tah NUO-vah). That work opens with the narrator being attacked in a wood by a leopard, lion, and she-wolf, and sees (\*) "Abandon all hope ye who enter here" inscribed on the gates of Hell. For 10 points, name this Italian author of *The Divine Comedy*.  
ANSWER: Dante Alighieri [accept either name]

082-10-19-13110

10. Different forms of these objects are noted by their lack of a silicon absorption line at 615 nanometers. They are believed to occur from the rapid and violent collapse of a tightly bound iron core and in their aftermath they can compress to form an extremely dense (\*) neutron star. The Type Ia form of these objects typically occurs when a white dwarf exceeds the Chandrasekhar limit. The Crab Nebula is the result of one of these objects observed by Chinese astronomer in 1054 CE. For 10 points, name these stellar explosions.  
ANSWER: supernova

064-10-19-13111

11. **One Congressman who also had this profession, Robert Drinan, was the first member of Congress to introduce a resolution calling for Richard Nixon's impeachment. Drinan and another member of this occupation, Robert John Cornell, were ordered not to seek election in 1980. Another member of this profession started the magazine *Social Justice* and attacked the New Deal. That man, (\*) Charles Coughlin, was a "Radio" one of these and was ordered to stop his political activities by the Vatican. For 10 points, name this profession whose members take Holy Orders.**

ANSWER: priests [or equivalents, such as reverends, fathers, ministers, etc.]

030-10-19-13112

12. **This author wrote about a man who moves across the street to observe his wife for twenty years in the story "Wakefield." In another of his stories, Elizabeth fails to persuade Reverend Hooper to remove the title garment. In a novel by this author, Holgrave falls in love with Phoebe Pyncheon after she moves into the title building. In a novel by this author of "The Minister's Black Veil," Roger (\*) Chillingworth discovers Dimmesdale's affair with his wife Hester Prynne. For 10 points, name this American author of *The Scarlet Letter*.**

ANSWER: Nathaniel Hawthorne

015-10-19-13113

13. **One member of this ethnic group was the first Duke of Normandy, who was baptized Robert I, but originally named Rollo. Another member of this group was the founder of Russia's first dynasty, the Rurikids. One group of these peoples founded the settlement of L'Anse aux Meadows in Vinland. Harald Hardrada and St. Olaf were also members of this group. Members of this group established an area of control in (\*) Britain called the Danelaw. For 10 points, name these Scandinavian seamen who raided the coasts of Britain from the eighth to eleventh centuries CE.**

ANSWER: Vikings [prompt on Norsemen; prompt on Scandinavians; prompt on Danes]

026-10-19-13114

14. **This character convinces Nightingale to stay together with his lover Nancy while living in London. There, this man has an affair with Lady Bellaston. This character comes to London after learning he is not the father of Molly Seagrim's child. After it is revealed that this student of Thwackum is one of Bridget's sons, he realizes that his rival, Blifil, is his half-brother, and his guardian, Squire (\*) Allworthy, is his uncle. Name this lover of Sophia Western, a foundling whose history is recounted in a Henry Fielding novel.**

ANSWER: Tom Jones [accept either name]

079-10-19-13115

15. **The so-called "thixo" index is derived by measuring this property at different shear rates. One form of this property is the coefficient of proportionality between shear stress and the velocity gradient. By Stokes's Law, the drag force on a sphere is equal to six pi times the sphere's diameter times its velocity times this property of the fluid. (\*) Newtonian fluids have a constant value for this property, which comes in dynamic and kinematic forms. For 10 points, name this resistance of a fluid to flow.**

ANSWER: viscosity [prompt on mu; prompt on nu]

003-10-19-13116

16. **This god teamed up with Aegipan (EYE-gih-pon) to recover Zeus's missing sinews from Typhon (TIE-fun). His role in the Trojan War included gathering the three goddesses together for the Judgment of Paris. Shortly thereafter, he was sent to (\*) bring the magic herb mole (MO-lay) to Odysseus. This son of Zeus and Maia was the protector of merchants and guided the dead to Hades, in addition to being the messenger god. For 10 points, identify this Greek counterpart of the Roman Mercury, who flew about with his winged sandals.**

ANSWER: Hermes

019-10-19-13117

17. **This man's government was rocked by allegations of illegal financial contributions in the Bettencourt Affair. He also drew controversy for discussing "African peasants" in Senegal. He began his career in the federal government as the Minister of the Budget during the final term of (\*) Francois Mitterand. Recently, he has drawn heavy criticism for expelling hundreds of thousands of Gypsies from his country. This man defeated Segelene Royale to reach his highest post, where he succeeded Jacques Chirac in 2007. For 10 points, name this current French president.**

ANSWER: Nicolas Sarkozy

064-10-19-13118

18. **A crisis over the succession of this position lead to the H?gen Rebellion. One of these, Go-Daigo, attempted to regain lost power in the Kemmu restoration. All holders of this position are descendants of the first one, Jimmu, who is said to be a descendant of Amaterasu. The holder of this position sits on the (\*) Chrysanthemum Throne and, at the end of World War II, the Sh?wa one renounced his divinity. For 10 points, name this position of a particular Pacific island nation, held during World War II by Hirohito.**

ANSWER: Emperor of Japan [or tenno]

001-10-19-13119

19. **One castle that overlooks this country's capital was built by the Counts of Werdenberg-Sargans (VER-den-berg ZAR-ganz). The Samina River originates in this country and merges with the Ill. Ivoclar Vivadent is a company that makes a product for which this country is the world's largest exporter, false teeth. That company is located in its largest municipality of (\*) Schaan. Bounded on the west by the Rhine, it is the only country that is entirely in the Alps. For 10 points, name this German speaking doubly landlocked European nation with capital at Vaduz.**

ANSWER: Liechtenstein

084-10-19-13120

20. **One composer from this country was a piano virtuoso who wrote a suite of twelve piano "impressions," one of which depicts a Corpus Christi day celebration. Another composer from this nation wrote a ballet that describes a lecherous magistrate who lusts after a miller's wife. This is the home country of the classical guitarists Fernando Sor and Andres Segovia, as well as the composer of *The (\*) Three-Cornered Hat*, Manuel de Falla, and the cellist Pablo Casals. For 10 points, name this European country whose dancers often click castanets to flamenco music.**

ANSWER: Kingdom of Spain [or Reino de España]

026-10-19-13121

21. In one incident, a rival of this man cuts off a corner of this man's robe while he is relieving himself in a cave. With the help of Doeg the Edomite, he massacred the priests of Nob. This man grew so paranoid that he consulted the forbidden witch at (\*) Endor. He rescued the city of Jabesh Gilead after being anointed by the prophet Samuel. His rival was the husband of his daughter Michal and had once soothed this man with harp playing before gaining fame by killing Goliath. For 10 points, name this predecessor of David, the first king of Israel.

ANSWER: Saul

052-10-19-13122

22. One of this author's characters enrages his superior by grinding out his cigarette on a clean floor. In one of his works, General Cummings orders Lieutenant Hearn to lead a platoon in surveying Anapopei, an island under Japanese control. He also wrote a novel based on the execution of Gary (\*) Gilmore, who demanded that the death penalty be carried out for his crimes. For 10 points, name this American author of *The Executioner's Song* and *The Naked and the Dead*.

ANSWER: Norman Mailer

080-10-19-13123

23. An ethylene group is attached to this compound in the monomer that forms the plastic polystyrene ("POLLY"-sty-reen). Placing two methyl groups on this compound produces xylene (ZY-leen), while fully reducing this compound produces cyclohexane (SY-klo-hex-ain). (\*) Friedrich Kekule (KECK-you-lee) determined the structure of this compound which consists of alternating single and double bonds, a system of delocalized electrons which gives it a property known as aromaticity. For 10 points, name this hydrocarbon with chemical formula  $C_6H_6$ .

ANSWER: benzene [or  $C_6H_6$  before mentioned]

064-10-19-13124

1. This "Athens of the North" has overlooked the Firth of Forth ever since it incorporated the port of Leith. For 10 points each:

[10] Identify this educational center, the capital of Scotland.

ANSWER: **Edinburgh** [or **Dun Eideann**]

[10] The rough-and-tumble Gorbals area and the River Clyde may be found in this city forty-five miles west of Edinburgh, which is Scotland's largest metropolis.

ANSWER: **Glasgow** [or **Glaschu**]

[10] This third-largest Scottish city is found at the mouths of the Don and Dee rivers, and is the center of the North Sea oil industry.

ANSWER: **Aberdeen**

019-10-19-13201

2. Factors that influence the rate of this include facilitation, inhibition, and tolerance. For 10 points each:

[10] Name this change in an ecosystem over time which can include changes in the composition of animals and plants living there.

ANSWER: ecological **succession**

[10] Lichens are an example of this sort of species that moves into a barren habitat during primary succession.

ANSWER: **pioneer** species [or **pioneer** organism]

[10] Taiga and Desert are examples of these major types of communities that are categorized by the climate and type of vegetation.

ANSWER: **biome** [prompt on **ecosystem**]

001-10-19-13202

3. Members of this art movement include Bart van der Leck and its founder, Theo van Doesburg. For 10 points each:

[10] Name this early 20th century art movement concentrated in the Netherlands. It advocated the use of primary colors and straight, perpendicular black lines.

ANSWER: De **Stijl** (STEEJ) [or The **Style** or **Neoplasticism**]

[10] The best known member of De Stijl is this Dutch artist whose iconic paintings of primary colors on white backgrounds include *Composition with Blue, Yellow, Black, and Red*.

ANSWER: Piet **Mondrian** [or Pieter Cornelis **Mondriaan**]

[10] Shortly before his death, Mondrian created this 1943 painting inspired by sights and sounds of New York City. It consists of yellow, blue, and red squares on a white background.

ANSWER: **Broadway Boogie-Woogie**

083-10-19-13203

4. The Park51 Islamic Center has been at the center of recent news. For 10 points each:

[10] The center has received criticism for its proximity to this location.

ANSWER: **Ground Zero** [accept descriptive answers such as "former site of the **World Trade Center**"]

[10] This Republican politician described Park51 as a "stab in the heart" on her Twitter account.

ANSWER: Sarah **Palin**

[10] The proposed Park51 Islamic Center would be led by this imam, who has authored *What's Right with Islam Is What's Right with America*.

ANSWER: Imam Feisal Abdul **Rauf**

064-10-19-13204

5. This period of Roman history began with the ousting of Tarquin the Proud. For 10 points each:  
[10] Name this period lasting from 509-27 BCE, during which Romans were governed by a Senate and two consuls.

ANSWER: the Roman **Republic** [or **res publica**]

[10] In 280 BCE, this king of Epirus sent Cineas into Italy to protect the colony of Tarentum. He defeated the Romans at the battles of Asculum and Heracleia, but at great cost.

ANSWER: **Pyrrhus** of Epirus

[10] This staunch Republican statesman vehemently opposed Julius Caesar. After his ally Metellus Scipio was defeated at Thapsus, this man committed suicide in Utica.

ANSWER: Marcus Porcius **Cato the Younger** [or **Cato Minor**; prompt on **Cato**]

080-10-19-13205

6. One of his earliest works was a design for the façade of the shoe-last-producing Fagus Factory. For 10 points each:

[10] Name this Modernist German architect who co-designed the MetLife building in New York and founded The Architect's Collaborative.

ANSWER: Walter **Gropius**

[10] Gropius may be best known for founding this school of design in Germany in 1919. Under pressure from the Nazis, it was shut down in 1933 by its third director, Ludwig Mies van der Rohe.

ANSWER: **Bauhaus**

[10] Gropius also designed the Graduate Center at this Massachusetts university, whose namesake "bridge" is the longest over the Charles River and connects it to MIT.

ANSWER: **Harvard** University

083-10-19-13206

7. This work focuses on the lives of inmates, or "zeks," and was banned in its country of origin until 1989. For 10 points each:

[10] Name this work so named for the island-like structure of forced labor camps.

ANSWER: *The **Gulag Archipelago*** or ***Arkhipelag GULag***

[10] *The Gulag Archipelago* was a work by this author who wrote of life within a hospital in his *Cancer Ward*.

ANSWER: Aleksandr **Solzhenitsyn** (sole-zhuh-NEAT-sin)

[10] Solzhenitsyn also wrote a novel about one day in the life of this titular labor camp inmate.

ANSWER: **Ivan Denisovich** [accept either name]

064-10-19-13207

8. This tribe massacred troops led by William Fetterman during Red Cloud's War. For 10 points each:

[10] Name this upper Midwest Native American tribe led by Crazy Horse and Sitting Bull. Members of this tribe were the victims of the Wounded Knee massacre.

ANSWER: **Sioux** [or **Lakota**]

[10] A joint Sioux, Cheyenne, and Arapaho force destroyed the Seventh Cavalry commanded by this general at the Battle of Little Bighorn, which became known as his "last stand."

ANSWER: General George **Custer**

[10] The Wounded Knee massacre effectively ended this religion preached by Wovoka, which believed that a coming apocalypse would restore the natural world, replenish the buffalo, and return dead ancestors to life.

ANSWER: **Ghost Dance**

004-10-19-13208

9. This man had served as the leader of the Ever Victorious Army, leading to his gaining a nickname. For 10 points each:

[10] Name this man who later fought against the Mahdists and died while trying to defend Khartoum during a siege.

ANSWER: Charles George **Gordon** [or Chinese **Gordon**]

[10] The Siege of Khartoum occurred in this country. Ali Kushayb's Janjaweed are committing genocide in this country's Darfur region.

ANSWER: Republic of the **Sudan** [or Jumhuriyat as-**Sudan**]

[10] In this other incident, French soldiers under Jean-Baptiste Marchand confronted British troops under Herbert Kitchener over the control of a meaningless fort.

ANSWER: **Fashoda** Incident

080-10-19-13209

10. This man complained about how neutrinos "infiltrate you and me" in his poem "Cosmic Gall." For 10 points each:

[10] Name this American author who wrote about Alexandra Spofford and Jane Smart in *The Witches of Eastwick* and who also wrote the short story "A & P."

ANSWER: John **Updike**

[10] This Updike novel is the first in a series of four novels about a former high school basketball player who sells kitchen gadgets.

ANSWER: **Rabbit, Run**

[10] This is the real name of "Rabbit" in Updike's *Rabbit, Run* and its sequels.

ANSWER: **Harry Angstrom** [accept either name]

082-10-19-13210

11. This program is loaded when a computer is turned on by the bootstrap loader. For 10 points each:

[10] Name this computer software that allows for the completion of computer programs and an examples of which include Linux and Windows.

ANSWER: **operating systems** [or **OS**]

[10] This key part of the operating system is responsible for control of the computer's hardware.

ANSWER: **kernel**

[10] This real-time operating system that used to be made by Intel subsidiary Wind River Systems is used in embedded applications ranging from the Mars Exploration Rovers to core common system of the Boeing 787.

ANSWER: **VxWorks**

023-10-19-13211

12. Name these game series published by Capcom, for 10 points each.

[10] An upcoming reboot will give a more action-oriented, James Bond-influenced style to Dante, the half-demon protector of humans who is the protagonist of this series.

ANSWER: **Devil May Cry**

[10] The first true sequel to this Xbox 360 game will be released in September 2010; a spinoff Wii title, *Chop Till You Drop*, re-used the plot of fighting zombies in a Colorado mall.

ANSWER: **Dead Rising**

[10] Protagonists and settings change over the course of this survival horror series; the only constant is the raptors which repeatedly jump at the player.

ANSWER: **Dino Crisis**

019-10-19-13212

13. This poem contains an account of Abdiel's ineffectual defection. For 10 points each:

[10] Identify this ten-book epic poem that opens with the lines "Of Man's first disobedience, and the Fruit of that Forbidden tree."

ANSWER: **Paradise Lost**

[10] *Paradise Lost* was written by this English poet who also authored a defense of free speech, the *Areopagitica*.

ANSWER: John **Milton**

[10] Milton addresses this malady in a poem in which he "considers how [his] light is spent," with "one Talent" that is "lodg'd with [him] useless."

ANSWER: **blindness** [accept equivalents, such as "he **cannot see**"]

020-10-19-13213

14. Answer the following questions about lens optics, for 10 points each.

[10] A biconvex lens causes this phenomenon, in which all exiting light rays trace to a single point.

ANSWER: **convergence**

[10] What is the name for that point at which the collimated light will converge from a biconvex lens?

ANSWER: **focal** point [or **focus**]

[10] The focal point becomes blurred because the lens surface is not ideally shaped in the "spherical" form of what term for lens distortion?

ANSWER: **aberration** [or spherical **aberration**]

026-10-19-13214

15. He is said to have written down his ideas in the Gathas, which form one section of the Avesta. For 10 points each:

[10] Name these ancient prophet, who warned Iranians not to follow the evil Ahriman, thus founding his namesake dualistic religion.

ANSWER: **Zoroaster** [or **Zarathustra**; or **Zarathushtra**]

[10] Instead of Ahriman, who spreads "druj" or "lies," Zoroastrians are exhorted to obey this chief god of positive virtues, who leads the Amesha Spentas.

ANSWER: **Ahura Mazda**

[10] After death, Zoroastrians believe that humans must walk over Chinvat, a structure of this type, which will tip over and plunge the wicked into Hell. In Norse myth, Bifrost was a structure of this kind which was made of rainbows.

ANSWER: **bridge**

019-10-19-13215

16. This composer depicted a demon near the river Terek in his tone poem *Tamara*. For 10 points each:

[10] Name this composer of an "Oriental Fantasy" called *Islamey*.

ANSWER: Mily Alekseyevich **Balakirev**

[10] Balakirev was the leader of this group of Russian composers, which also included Modest Mussorgsky, Cesar Cui, and two others.

ANSWER: the **Mighty Five** [or **Mighty Handful**; or **Moguchaya Kuchka**]

[10] Balakirev's *Islamey* is an extremely difficult piece for this keyboard instrument. It features eighty-eight keys, and comes in upright and grand varieties.

ANSWER: the **piano**

080-10-19-13216

17. An 1885 conference in this city was called to settle a variety of colonial disputes, but it instead started the "Scramble for Africa." For 10 points each:

[10] Name this German city that earlier held a Congress designed to revise the Treaty of San Stefano ending the Russo-Turkish War.

ANSWER: **Berlin**

[10] The Berlin Conference declared the Congo River Basin to be the Congo Free State as a neutral and independent territory, but it essentially became the personal fiefdom of this monarch.

ANSWER: **Leopold II** [prompt on **Leopold**]

[10] Leopold II was the king of this European country that had earlier made up most of the Spanish Netherlands with its neighbor Luxembourg.

ANSWER: Kingdom of **Belgium** [or Royaume de **Belgique**]

003-10-19-13217

18. This work was written using its author's namesake eight-line stanza, and characters in it include the knights Artegal and Britomart, the personifications of justice and chastity. For 10 points each:

[10] Name this allegorical work whose first book features the Redcrosse Knight rescuing Una's parents by slaying a dragon.

ANSWER: *The **Faerie Queene***

[10] *The Faerie Queene* was written by this Elizabethan poet who also wrote *The Shepheardes Calender*.

ANSWER: Edmund **Spenser**

[10] Spenser wrote an elegy on the death of this English poet who wrote *The Defense of Poesy* and the sonnet sequence *Astrophel and Stella*.

ANSWER: Sir Philip **Sidney**

083-10-19-13218

19. Along with Caleb, he was one of the Twelve Spies who gave a favorable appraisal of Canaan. For 10 points each:

[10] Name this man who accompanied Moses on the climb up Mt. Sinai. He succeeded Moses as leader of the Israelites.

ANSWER: **Joshua** [or **Hoshea**]

[10] God commanded Joshua to conquer Canaan by besieging this city. The Israelites marched around it for six days before causing its walls to topple by blowing horns on the seventh.

ANSWER: **Jericho**

[10] Before crossing the Jordan, Joshua sent two spies to Jericho, where they were protected by this prostitute. Her house was spared during the siege because she displayed a red rope.

ANSWER: **Rahab**

079-10-19-13219

20. The vagaries of identity were a popular subject of movies in 2010. For 10 points each:

[10] Scheduled for an October wide release, this film, promoted by lengthy commercials using a vocal version of Radiohead's "Creep," fictionalizes the origin of Facebook.

ANSWER: *The **Social Network***

[10] Director Casey Affleck admitted in September that this pseudo-documentary about Joaquin Phoenix's rap career and mental breakdown was in fact a hoax.

ANSWER: ***I'm Still Here***

[10] Social networking and pseudo-documentaries unite in this September release, which follows two men who travel to Michigan to locate a child art prodigy whom they had befriended on Facebook.

ANSWER: ***Catfish***

019-10-19-13220

21. It is the amount of energy required to break apart a crystal and turn its component ions into gases, or alternatively the amount of energy required to form a crystal from those component ions. For 10 points each:

[10] Name this type of energy.

ANSWER: **lattice** energy

[10] A crystal's lattice energy can be calculated by applying this law, which states that a reaction's change in energy is independent of its pathway. It computes a reaction's change in enthalpy as the enthalpy of formation of the products minus that of the reactants.

ANSWER: **Hess's** Law

[10] This doubly-eponymous cycle is the name given to that method of applying Hess's Law to calculate the lattice energy of a crystal.

ANSWER: **Born-Haber** cycle

003-10-19-13221