## 金 HSAPQ <br> High School Academic Pyramid Questions

1. The aliquot type of these constructs can be used to identify perfect numbers, and the BolzanoWeierstrass theorem states that every bounded one has a convergent subset. Ones in which the terms eventually become arbitrarily close are named for Cauchy. In any complete space, these are guaranteed to converge to a fixed limit. Many are defined via a ( ${ }^{*}$ ) recursive formula, as is the case with the ones named for Lucas. For 10 points, identify these ordered lists of numbers, the most famous example of which begins one, one, two, three, five, eight and is named for Fibonacci. ANSWER: sequences [accept infinite sequences; prompt on number before "Bolzano-Weierstrass theorem"]
2. Anne Whitney designed a statue of this man that still stands in Boston. The so-called "Book of Kings" notes that this man, sometimes called "the Lucky" or "the Fortunate," was originally a Christian missionary, while the Flatey codex claims that another man beat this man to his most famous (*) accomplishment. Another story tells of Tyrkir, a German who fell behind on a scouting mission only to surprise this man with talk of grapes. For 10 points, name this Norse adventurer who discovered Vinland, purportedly the first European to set foot in North America.
ANSWER: Leif Ericsson [or Leif Ericson; or Leif Erikson; or Leif Eriksson]
3. In one novel, this man's former companion learns how to write the letter " 0 " from a woman who was once this man's lover. In that novel, he is accompanied by a woman who is looking for her lost daughter and dies homesick aboard a vessel commanded by Captain Smith. A torrent of water escapes from his tongueless (*) companion's mouth at the end of a novel about this man that sees him become Susan Barton's lover, J.M. Coetzee's Foe. For 10 points, name this man who was marooned with Friday, the title castaway of a novel by Daniel DeFoe.
ANSWER: Robinson Crusoe [accept either; accept Cruso]
4. According to some sources, Iphigenia became a priestess of this figure after being saved from sacrifice. This figure sometimes replaces Selene as the lover of Endymion, and this figure caused Otis and Ephialtes to kill each other. Out of jealousy of Eos, this figure killed (*) Orion, and she took part in the killing of Niobe's children. A grandson of Cadmus named Actaeon saw her bathing naked, so she caused his own dogs to kill him, and the Calydonian Boar was her creature. For 10 points, name this maiden goddess of the hunt and sister of Apollo.
ANSWER: Artemis [accept Diana]
5. A piano concerto named for this country includes the movements At The Generalife and Distant Dance, and is named for "Nights in the Gardens of" this country. Edouard Lalo wrote a Symphonie with a solo violinist named for this place. A composer from here wrote the song "Will $\mathrm{O}^{\prime}$ ' The Wisp" in Love The Magician, as well as writing The (*) Three-Cornered Hat. For 10 points, name this home of Manuel de Falla, a country that was musically portrayed in Debussy's Iberia and Glinka's Summer Night in Madrid.
ANSWER: the Kingdom of Spain [or Reino de España]
6. This artist painted an Italian miniaturist pointing at a book in his portrait of Giulio Clovio. Jesus has his right hand bound in rope and wears red in this man's The Spoilation of Christ. A man in blue with his arms outstretched covers the whole left of his painting with nudes holding up green and yellow cloths, The Opening of the Fifth Seal of the Apocalypse. He painted a (*) city with a tempestuous sky and a bridge spanning a river in his View of Toledo. For 10 points, name this Spanish painter of The Burial of Count Orgaz, an artist born on Crete.
ANSWER: El Greco [or Domenikos Theotokopolis]
7. In addition to proline and hydroxyproline, the triple helix structure of collagen is primarily due to this amino acid. Strychnine works by blocking receptors for this amino acid, which, like GABA, is a common inhibitory neurotransmitter. Of the twenty amino acids commonly used to build proteins, it is the only ( ${ }^{*}$ ) achiral one. For 10 points, name this smallest amino acid, whose $R$ chain is just a hydrogen atom, given the one-letter designation $G$.

8. A work arguing that Florentine culture was the origin of individualism, written by Jacob Burckhardt, was titled as this "of the Renaissance in Italy." Another work titled for it says that "surplus repression" is generated by capitalism and was written by Herbert Marcuse, pairing this entity with (*) "eros." Another work with this word in the title analyzed the "oceanic feeling;" written by Freud, that book claims that this entity can only exist by frustrating individual drives and pairs it with "its discontents." For 10 points, give this term for all of settled human society.
ANSWER: civilization [accept The Civilization of the Renaissance in Italy]
9. One character in this work considers a fling with the Irish writer Michaelis. This novel contains a nurse named Ivy Bolton. A scheme in this work sees the painter Duncan Forbes claim to be the father of the protagonist's illegitimate child. The title character's husband is a Baronet who lives at Wragby and becomes (*) paralyzed during World War I, and this novel was subject to an obscenity trial over its sexual content and the use of the f-word. For 10 points, name this work that sees Sir Clifford's wife Connie have an affair with gamekeeper Oliver Mellors, by D.H. Lawrence.
ANSWER: Lady Chatterley's Lover
10. She wrote a version of the exodus story in which Miriam makes up the story about a princess discovering her brother, Moses, Man of the Mountain. In one of her novels, Earl David is the deformed child of Jim and Arvay Meserve. This author of Seraph on the Sewanee penned a collection of folklore from New Orleans and (*) Florida, Mules and Men. She wrote another work in which a woman kills her rabid husband Tea Cake. For 10 points, name this author who created Logan Killicks and Janie Crawford in Their Eyes Were Watching God.
ANSWER: Zora Neale Hurston
11. The total value of this property for an atom can be obtained by using Russell-Sanders coupling to combine contributions from orbital and spin components. A deficiency in this quantity during beta decay led Wolfgang Pauli to hypothesize the neutrino. Its conservation by (*) Noether's theorem is the basis of Kepler's second law of planetary motion, and torque is the time derivative of this quantity according to Newton's second law. For 10 points, name this vector quantity, defined as the product of the moment of inertia and the angular velocity.
ANSWER: angular momentum [prompt on momentum]
12. As of January 2009, this university's men's cross-country team is the two-time defending national champion. In 2002, this school's men's basketball team lost an Elite 8 game to Kansas after a run led by Luke Jackson and Luke Ridnour, and in 2007, Aaron Brooks was on its (*) Pac-10 championship team. Two alumni of its track team invented the waffle-soled shoe and founded Nike, and its football team won the 2008 "Civil War" against its rival from Corvallis. For 10 points, name this school which plays sports as the Ducks and is located in Eugene.
ANSWER: University of Oregon
13. Samuel Barber, a friend of this opera's composer, was hurriedly brought in to finish its orchestration. The title character attempts to convince his mother that there is a star "as big as a window" outside their house after she calls him in, and the aria "All These Beautiful Things" is sung as the title character fetches all of his neighbors. At its end, the protagonist's (*) leg is healed and he goes off with Kaspar, Balthazar, and Melchior to see the Christ child. For 10 points, name this first opera specifically composed for television, a work of Gian Carlo Menotti.
ANSWER: Amahl and the Night Visitors
14. One of this author's works sees the title character act in The Blonde Venus before succumbing to smallpox. This author penned a novel in his series that sees Maheu and Etienne work in a coal mine, a novel that appeared along with Therese Raquin and Nana in his (*) Rougon-Macquart series. This author also wrote a letter published in Clemenceau's L'Aurore newspaper that implicated Major Esterhazy in a crime blamed on a Jewish officer. For 10 points, name this author of Germinal, who defended Alfred Dreyfus in the letter J'Accuse.
ANSWER: Emile Francois Zola
15. During this man's administration, a potential annexation of Santo Domingo failed to be ratified by the Senate, and his Secretary of State Hamilton Fish negotiated the Treaty of Washington. He appointed Morrison Waite and Edwin Stanton to the Supreme Court, and he authorized a release of massive amounts of (*) gold in reaction to Fisk and Gould's attempt to corner the market on Black Friday. His vice president Schuyler Colfax was implicated in the Crédit Mobilier scandal. For 10 points, name this Civil War general and eighteenth president of the United States.
ANSWER: Ulysses S. Grant [or Hiram Ulysses Grant]
16. This doctrine was deemed compatible with intuitionism yet irreconcilable with egoism as a form of "universal hedonism" in The Methods of Ethics, by Henry Sidgwick. Another of this school's adherents was William Paley, while its founder sought to apply it to a universal code of law in works such as Introduction to the (*) Principles of Morals and Legislation. In addition to Jeremy Bentham, it was advocated by the man who wrote On Liberty, John Stuart Mill. For 10 points, name this school of ethics that seeks to achieve "the greatest good for the greatest number."
ANSWER: Utilitarianism
17. The equation stating that the derivative of this quantity's natural logarithm is inversely proportional to heat and directly proportional the square of temperature is named after van't Hoff. By the Henderson-Hasselbalch equation, pH is equal to the base ten logarithm of this quantity for a (*) half-dissociated acid. If two moles of $A$ turn into three moles of $B$, then this quantity can be calculated as the concentration of $B$, cubed, over the concentration of $A$, squared. For 10 points, name this constant that equals one when the forward and reverse reaction rates are equal.
ANSWER: the equilibrium constant
18. The independence of this polity was the goal of the terrorist komitadji groups, and Stephen Dusan once conquered it. It was the site of the Salonica campaigns during World War I, and a man seeking independence of this polity assassinated King Alexander of Yugoslavia in 1934. The Congress of Berlin gave this polity back to the Ottoman Empire, thus nullifying the Treaty of San Stefano, which had awarded it to Bulgaria. It was ruled by the (*) Antigonids from 306 to 168 BC. For 10 points, name this region led by men such as Philip II and Alexander the Great.
ANSWER: Macedonia [or Macedon]
19. This American state's city of Berlin is the site of textile mills on the Androscoggin River, and Laconia is on its Lake Winnipesaukee. With its eastern neighbor, this state shares the Isles of Shoals, and it is the origin of the Merrimack River. Its (*) Presidential Range includes its highest point, Mount Washington, part of the White Mountains. Formerly home to the Old Man of the Mountain, its western border is defined by the Connecticut River. For 10 point, name this state, home to Dartmouth University and the capital city of Concord.
ANSWER: New Hampshire
20. This man was defeated at the Battle of Arsuf, allowing his foes to retake Joppa. Earlier, his forces defeated Guy of Lusignan at the Horns of Hattin. His lands were divided among his sons Al-Afdal, AIZahir, and Al-Aziz after his death, fragmenting the new dynasty he had founded by taking advantage of popular opposition to the Shiite (*) Fatimids. This founder of a new Sunni dynasty in Egypt, the Ayyubids, was a Kurdish soldier whose actions led to the calling of the Third Crusade. For 10 points, name this sultan who retook Jerusalem, the nephew of Nur ad-din.
ANSWER: Saladin [or Salah Ad-din Yusuf Ibn Ayyub; or AI-malik An-nasir Salah Ad-din Yusuf I]
21. In one of his works, Father Leon Rivas is Paraguayan rebel leader who gets Eduardo Plarr to help him save his father. In one of his works, Thomas Fowler's Vietnamese mistress Phuong leaves him for Alden Pyle, who is murdered. In another work of this author, Brigida is the illegitimate daughter of the (*) Whiskey Priest, who is a Mexican fugitive. Helen Rolt becomes the mistress of Major Scobie, a west African official, in his The Heart of the Matter. For 10 points, name this author of The Quiet American and The Power and the Glory.
ANSWER: Graham Greene
22. This is the brightest star in a circular asterism known as the "Engagement Ring." This secondmagnitude star was classified by Ptolemy as third-magnitude, suggesting it may be twice as bright as it was two thousand years ago. It is the brightest Cepheid variable, and it lies along the line connecting Dubhe and Merak. Its most notable (*) characteristic will be usurped by Vega in a few thousand years. For 10 points, name this brightest star in Ursa Minor at the end of the Little Dipper, also known as the North Star.
ANSWER: Polaris [prompt on North Star before mentioned]
23. The Aunus Expedition was launched by this nation against its eastern neighbor, with whom it would sign the Treaty of Tartu, and Frederick Charles of Hessen would have become king of this nation had Germany won World War I. The Battle of Tampere occurred during a civil war here fought between factions known as the White and Red Guards. This nation lost Petsamo in the (*) Continuation War and fought against the Soviet Union along the Mannerheim Line during the Winter War. For 10 points, name this country now led by Tarja Halonen from Helsinki.
ANSWER: Finland

## 春 HSAPQ

1. After a declaration of war in this opera, one character goes to the temple of Vulcan to take up sacred arms. For 10 points each:
[10] The aria "O Patria Mia" is sung before Amneris and Ramfis order Radames arrested in this opera, in which the title character dies in Radames's arms.
ANSWER: Aida
[10] This composer of Simon Boccanegra, La Forza del Destino, and Nabucco created Aida and works featuring the "Anvil Chorus" and "La donna è mobile", II Trovatore and Rigoletto.
ANSWER: Giuseppe Fortunino Francesco Verdi
[10] This Verdi opera is set to a Boito libretto and features the aria "Wet your throat," in which Cassio gets more and more drunk. "Open Up" is sung just before Desdemona gets strangled.
ANSWER: Otello [accept Othello]
2. This poet appended a fifth section to his epic poem Paterson. For 10 points each:
[10] Name this poet who asked to be forgiven for eating "the plums / that were in / the icebox" in "This Is Just To Say."
ANSWER: William Carlos Williams
[10] Williams included poems like "Children's Games," "Peasant Wedding," and "Landscape With the Fall of Icarus" in a collection named "pictures from" this artist.
ANSWER: Pieter Brueghel the Elder
[10] Williams used the variable foot for this Imagist poem which asserts that "so much depends on" the title object, which lies "besides the white chickens."
ANSWER: "The Red Wheelbarrow"
3. Its initiatives included the Works Progress Administration, the Tennessee Valley Authority, and the National Recovery Administration. For 10 points each:
[10] Name this vast series of reforms initiated by Franklin Roosevelt to lift the US out of the Great Depression.
ANSWER: New Deal
[10] This New Deal program attempted to fight unemployment by giving people jobs in the country under Army Supervision.
ANSWER: the CCC [or Civilian Conservation Corps]
[10] This program subsidized farmers for not planting crops, leading to reduction of crop surplus and price stabilization.
ANSWER: the AAA [or Agricultural Adjustment Act]
4. Name some German playwrights and their works, for 10 points each.
[10] This man wrote the novels The Sorrows of Young Werther and Egmont in addition to the closet drama Faust.
ANSWER: Johann Wolfgang von Goethe
[10] This author of Don Carlos wrote about a Swiss patriot in William Tell and about Karl and Franz Moor in The Robbers in addition to penning the poem Ode to Joy.
ANSWER: Johann Christoph Friedrich von Schiller
[10] Gerhart Hauptmann wrote a play about a workers' rising among these textile employees. George Eliot wrote about Silas Marner, the one of Raveloe.
ANSWER: weavers [accept The Weavers; accept Die Weber]
5. This event installed Prince Lvov as the new prime minister and was completed when the named heir, Prince Mikhail, renounced the throne. For 10 points each:
[10] Name this 1917 event which deposed Nicholas II as tsar of Russia, and which was followed eight months later by the Bolshevik overthrow of the provisional government that this established. ANSWER: February Revolution [accept March Revolution, as it is sometimes referred to by this name due to the discrepancy in Russian and Western calendars at the time]
[10] Following the collapse of the June Offensive, this politician took power in the provisional government and remained prime minister until the October Revolution overthrew him.
ANSWER: Aleksandr Fyodorovich Kerensky
[10] One of the first actions of the new Soviet government following the October Revolution was to start negotiating this agreement with Germany to end Russia's involvement in World War I.
ANSWER: Treaty/Treaties/Peace of Brest-Litovsk
6. Equipment used to perform this technique almost always includes a buret. For 10 points each:
[10] Name this method of analysis in which a solution of one reactant is slowly added to another until an indicator changes color. It is often used in acid-base reactions.

## ANSWER: titration

[10] This is the point in a titration at which just enough titrant has been added to the solution to react with all of the molecules of the substance being titrated.
ANSWER: equivalence point [or endpoint; or stoichiometric point]
[10] When titrating amino acids, this other point on the titration curve can be calculated. It represents the pH at which the amino acid has no net charge.
ANSWER: isoelectric point
7. Fanny Kaplan attempted to assassinate this man in 1918. For 10 points each:
[10] Name this world leader who wrote the pamphlet What Is to Be Done? and who was replaced by Stalin.
ANSWER: Vladimir Ilyich Lenin
[10] Kaplan was interrogated by this Soviet secret police, whose head was Feliks Dzerzhinsky.
ANSWER: the Cheka
[10] In 1921, Lenin launched this program that allowed some small businesses to operate as private enterprises. It followed War Communism, and was ended by the first Five-Year Plan.
ANSWER: New Economic Policy [or NEP]
8. For a vacuum, it is equal to the inverse square root of the electric permittivity times the magnetic permeability. For 10 points each:
[10] Give this value that is used to calculate the index of refraction of a medium and is approximately equal to three times ten to the eight meters per second in a vacuum.
ANSWER: speed of light
[10] This experiment utilized a namesake interferometer, and its null result demonstrated that the speed of light does not change depending on the direction it travels relative to the viewer.
ANSWER: Michelson-Morley experiment
[10] The Michelson-Morley experiment sought to demonstrate the existence of this material, which was thought to propagate electromagnetic waves and form an absolute reference frame.
ANSWER: luminiferous ether
9. Name these Asian religions, for 10 points each.
[10] Mencius is known as the "second sage" of this religion, named for the man whose sayings are collected in the Analects.
ANSWER: Confucianism
[10] This Vietnamese religion includes Julius Caesar, Victor Hugo, and Sun Yat-sen among its saints.
ANSWER: Cao Dai
[10] Li Hongzhi founded this religion incorporating Buddhist and Taoist teachings. It was outlawed by the Chinese government.
ANSWER: Falun Gong [or Falun Dafa]
10. In the 2007 film version of Philip Pullman's The Golden Compass, he lent his voice to the panserbjorn Iorek Byrnison. For 10 points each:
[10] Name this openly-gay British actor who is probably best known for portraying Gandalf in Peter Jackson's Lord of the Rings trilogy.

## ANSWER: Sir Ian McKellen

[10] McKellen is also pretty famous for his role as this arch-villain in all three of the $X$-Men movies, a powerful mutant originally named Erik Lehnsherr.
ANSWER: Magneto
[10] McKellen lent his name to the Toad, a mobster in this 2006 computer animated film about a whole bunch of rats in England.
ANSWER: Flushed Away
11. Examples of this phenomenon include air pollution caused by driving or the aesthetic benefits caused by repainting one's house. For 10 points each:
[10] What are these economic effects of private behavior upon others, which have "positive" and "negative" varieties?

## ANSWER: externalities

[10] Governments can check negative externalities with one of these entities named for A.C. Pigou. ANSWER: taxes [accept Pigouvian taxes]
[10] Positive externalities that must be paid for, such as cloud-seeding or national defense, can cause this situation, where it is impossible to prevent those who do not pay from benefitting.
ANSWER: free rider problem [prompt on tragedy of the commons]
12. It contains the Kattegat and the Skagerrak, which separates Jutland from Sweden and Norway, and cities lying on it include Gdansk and Stockholm. For 10 points each:
[10] Name this body of water which is an extension of the Atlantic Ocean and separates the Scandinavian Peninsula from continental Europe.

## ANSWER: Baltic Sea

[10] This northern arm of the Baltic Sea is spanned by the Aland Islands and forms the eastern shore of Sweden.
ANSWER: Gulf of Bothnia
[10] Helsinki and Tallinn lie on the entrance to this other arm of the Baltic, while St. Petersburg lies at its terminus.
ANSWER: Gulf of Finland
13. In the background, 2 of the 5 houses in a row are upside down, and an orthodox church sits next to them. For 10 points each:
[10] Name this painting, inspired by Vitebsk, which more prominently includes a green-faced man looking at a goat's head.
ANSWER: I and the Village
[10] Name the man who decorated the Knesset in Israel and who designed a window at the Metz cathedral that was smashed in 2008. This man also painted I and the Village.

## ANSWER: Marc Chagall [or Mark Zakharovich Shagal]

[10] Another Marc Chagall painting that includes a view of the Eiffel Tower out of a window is a selfportrait with seven of these body parts.
ANSWER: fingers
14. This text culminates in the battle of Kurukshetra. For 10 points each:
[10] Name this Hindu epic in which the Pandavas are victorious over the Kauravas.
ANSWER: the Mahabharata
[10] The Mahabharata was written in this ancient language, also the language of the Ramayana. ANSWER: Sanskrit
[10] The greatest author of Sanskrit drama and poetry was this man, who penned The Recognition of Shakuntala and The Cloud Messenger.
ANSWER: Kalidasa
15. Anti-government revolts have a long history in Britain. For 10 points each:
[10] This group, who supported restoring the Catholic line of James II to the throne, instigated the Fifteen and Forty-Five Rebellions and were put down for good at Culloden Moor.
ANSWER: Jacobites
[10] This 1381 movement by the namesake class of people was sparked by the imposition of a poll tax. It was led by Wat Tyler and John Ball, and was put down by King Richard II.
ANSWER: Peasants' Revolt [or Great Rising]
[10] This Catholic conspired with Robert Catesby to kill the Protestant James I and blow up Parliament in the Gunpowder Plot of 1605, inspiring a mask often worn on November 5.
ANSWER: Guy Fawkes
16. It is divided into the fundus, the body, and the cervix. For 10 points each:
[10] Name this organ of the female reproductive system.

## ANSWER: uterus

[10] This innermost layer of the uterine wall consists of an epithelial lining and the lamina propria, which contains the spiral arteries. It can also be divided into basal and functional layers.
ANSWER: endometrium [prompt on mucous membrane]
[10] The egg becomes implanted in the uterus after travelling from the ovaries via these tubes. Ectopic pregnancies occur when an egg becomes fertilized in one of them.
ANSWER: Fallopian tubes [accept oviducts]
17. A comic exchange in this play sees the two central characters argue over the phrase "light the kettle." For 10 points each:
[10] Name this play in which Gus and Ben receive messages via the titular conveyance.
ANSWER: The Dumb Waiter
[10] The Dumb Waiter is a play by this British absurdist playwright, who also The Homecoming and The Caretaker.
ANSWER: Harold Pinter
[10] Boarding house owners Meg and Petey Boles throw the title celebration for Stanley Webber, but it is interrupted by the sinister Goldberg and McCann in this Pinter play.
ANSWER: The Birthday Party
18. This man's works are cataloged by Hoboken numbers. For 10 points each:
[10] Name this composer of several London symphonies, including those nicknamed "Miracle" and "Clock."
ANSWER: Franz Joseph Haydn
[10] The second movement of this one of the London symphonies begins with a tranquil C major opening in $2 / 4$. Its eighth measure is a shockingly loud $G$ major chord, giving this piece its name. ANSWER: Surprise Symphony, Opus $\underline{94}$ [accept either; accept Sinfonie mit dem Paukenschlag] [10] The first four bars of that movement of the Surprise Symphony are rhythmically identical to this children's song. K265 is a set of twelve variations on this song by Mozart.
ANSWER: Twinkle, Twinkle, Little Star [accept Ah vous dirai-je, Maman]
19. For 10 points each, name these planetoids.
[10] Once thought to be a planet, it has now been downgraded to planetoid status. It is thought to be the larger object in a binary system with its "moon," Charon.
ANSWER: Pluto
[10] Among dwarf planet candidates, this Trans-Neptunian body named for an Inuit goddess goes the farthest from the sun.
ANSWER: 90377 Sedna
[10] This theoretical planetoid was proposed as the reason for the precession of the perihelion of Mercury until general relativity explained that precession.
ANSWER: Vulcan
20. Because this figure rejects Ishtar, she sends the Bull of Heaven to ravage his lands. For 10 points each:
[10] Name this two-thirds divine king of Uruk and hero of a namesake Sumerian epic.
ANSWER: Gilgamesh
[10] In order to tame Gilgamesh's wild spirit, the gods send this wild-man to him. Shamhat civilizes him, after which he becomes Gilgamesh's friend.
ANSWER: Enkidu
[10] Gilgamesh and Enkidu's first quest is to travel to the Cedar Forest and kill this demon that lives there, which they accomplish with the help of Shamash.
ANSWER: Humbaba
21. The last of several treaties ending this war was the 1721 Treaty of Nystad, which transferred Estonia, Ingria, and Livonia to Russia. For 10 points each:
[10] Name this war, which included the siege of Narva and proved fatal for Charles XII of Sweden. ANSWER: Great Northern War [or Second Northern War; prompt on Northern War]
[10] Charles XII's Russian opponent during the war was this modernizing tsar, who built an eponymous city on the Baltic.
ANSWER: Peter the Great [or Peter I; prompt on Peter]
[10] The turning point of the war was this 1709 battle, fought near the Vorskla River in Ukraine, which saw Menshikov capture almost the entirety of Charles's outnumbered army.
ANSWER: Battle of Poltava
22. It explicitly gives the solutions to any equation of the form a-times-x-squared plus b-times-x plus $c$ equals zero, in terms of the coefficients $a, b$, and $c$. For 10 points each:
[10] Name this formula, which includes the term plus-or-minus the square root of $b$-squared minus four-a-c.
ANSWER: quadratic formula
[10] The aforementioned b-squared minus four-a-c is known by this name. If it is zero the equation has exactly one solution, and if it's negative the equation has no real solutions.
ANSWER: discriminant
[10] The quadratic formula may be derived using this technique, in which you divide by a and then add the square of b-over-two-a to both sides.
ANSWER: completing the square
23. Adela Quested accuses Dr. Aziz of raping her in the Marabar Caves in this work. For 10 points each: [10] First, name this novel.
ANSWER: A Passage to India
[10] This author of Maurice and Where Angels Fear to Tread wrote A Passage to India.
ANSWER: Edward Morgan Forster
[10] This Forster novel concerns the class differences between the Basts, Schlegel, and Wilcoxes, who own the title house.
ANSWER: Howards End

