Question #1: Social Studies – World History
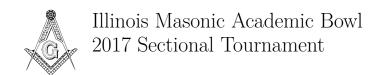
10 points

After coming to power, this person delegated much of his work to Archbishop of Canterbury Lanfranc [LAHN-frahnk], who stopped the Revolt of the Earls. When this person was about 19 years old, he defeated rebels — led by Guy of Burgundy — at the Battle of Val-ès-Dunes with the help of King Henry I of France. After a threatened rebellion against this leader did not materialize, he ordered a Great Survey of England, which was recorded in the Domesday ["doomsday"] Book. Name this leader who gained power after defeating Harold Godwinson at the Battle of Hastings in 1066 during the Norman conquest of England.	**William the Conquerer** or **William I** [or **William the Bastard**; prompt on **William**]

Question #2: Science – Astronomy

10 points

When it is farthest from the Sun, the centaur [SEN-tor] Hidalgo is at the orbit of this planet. A hurricane at the north pole of this planet has created a stable hexagonal cloud pattern. The first craft to fly close to this planet, Pioneer 11, almost crashed into its moon Epimetheus [ep-uh-MEE-thee-uss]. Knowledge of the exact position of this planet and its moons has improved recently due to the *Cassini [kuh-SEE-nee]* orbiter. The *Huygens [HOY-gens]* probe landed on Titan, this planet's largest moon. Name this planet that is the second-largest in the Solar System, after Jupiter, and which has a prominent ring system.	**Saturn**

Question #3: Miscellaneous – Agriculture
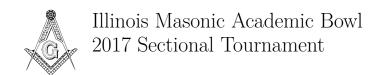
10 points

This substance and camelid [KA-muh-lid] fibers were used to make Incan *quipu* [KEE-poo]. To protect this crop, the USDA released malathion [muh-LATH-ee-ahn] in the air to eradicate a prominent pest that is now mostly confined to Texas. Flash paper is made from this substance and nitric acid. The "Egyptian" variety of this product has extra-long staple fibers. Name this crop that became more economically viable after Eli Whitney invented a "gin" to process it.	<u>**cotton**</u>

Question #4: Literature – U.S. Literature

10 points

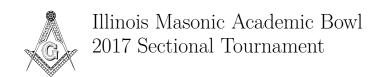|	
In one novel by this author, a jilted wife stabs the face of her husband's dead lover at her funeral. After the stabbing of Dorcas, Felice [fuh-LEES] helps Violet and Joe patch up their marriage in this author's novel *Jazz*. A mug featuring the image of Shirley Temple is adored by Pecola [pih-KOH-luh] Breedlove in another novel by this author. This author also wrote a novel about a mother who had cut her baby's throat with a saw. In that novel, the sons Howard and Buglar run away from their mother, the former slave Sethe [SETH-uh]. Name this author of *The Bluest Eye* and *Beloved*.	Toni **Morrison** [or Chloe Ardelia **Wofford**]

Question #5: Science – Chemistry

10 points

Fuel-injected engines use a sensor for this quantity to improve fuel economy and control emissions, called a MAP sensor. This quantity is on the y-axis for the line whose slope is given by the Clausius-Clapeyron relation. While two of the colligative [kuh-LIG-uh-tiv] properties are changes in boiling and freezing points, the other two are different types of this quantity. Raoult's [rah-oolt's] law can be used to find this property for a gas, or vapor. Name this quantity, equal to force per area, that is multiplied by volume in the ideal gas law.	**pressure**

Question #6: Social Studies – U.S. Government

10 points

One clause of this constitutional amendment has a dual-sovereignty doctrine exception that was clarified in the case of *Bartkus v. Illinois*. Part of the ruling in *Mackin v. U.S.* depended on the meaning of the word "infamous" in this amendment. The public use clause and the takings clause at the end of this amendment place limits on government power of eminent domain. The protection from being tried twice for the same offense is in this amendment's double jeopardy clause. Name this amendment that states that no person "shall be compelled in any criminal case to be a witness against himself".	**5**th Amendment

Question #7: Fine Arts – Musical Theatre

10 points per part

	In this musical, the role of Edna Turnblad — the mother of Tracy — is usually played by a man.	
1	Name this musical based on a John Waters film about efforts to integrate *The Corny Collins Show*, which is a local TV dance program.	***Hairspray***
2	*Hairspray* is set in this city. So is *Kiss Me, Kate.*	**Baltimore**, Maryland
3	John Travolta starred in the movie version of *Hairspray*, as well as that of this musical, set at Rydell High during the 1950s.	***Grease***

Question #8: Fine Arts – Musical Theatre

10 points per part

	This lyricist has famously collaborated with Andrew Lloyd Webber, Alan Menken, and Elton John.	
1	Name this lyricist of "Circle of Life" and "Can You Feel the Love Tonight" for *The Lion King.*	(Sir) Tim(othy Miles Bindon) **Rice**
2	Tim Rice wrote lyrics for "Red Shoes Blues" for an adaptation and update of this musical. Its original version includes the songs "Over the Rainbow" and "If I Only Had a Brain".	*The **Wizard of Oz***
3	Rice wrote the lyrics "The world and I, we are still waiting, Still hesitating" for this song that appears at the beginning and end of *Joseph and the Amazing Technicolor Dreamcoat.*	"**Any Dream Will Do**"

Question #9: Literature – Mythology

10 points per part

When this person participated in funeral games in Larissa, his wind-altered discus throw ended up killing his grandfather.		
1	Name this hero who borrowed the Aegis [EE-jiss] from Athena while he was completing a quest that Polydectes ["poly-DECK-tees"] set him to.	**Perseus**
2	Perseus decapitated this monster-woman, upon which her head was put on the center of the Aegis.	**Medusa**
3	To learn of the location of the Gorgons, Perseus blackmailed their sisters — known by this name — by snatching the one eye they shared among themselves.	**Graeae** [GRAY-ee] or **Gray Sisters**

Question #10: Literature – Mythology

10 points per part

In one Toltec myth, this god was driven into exile by Tezcatlipoca [TEZ-kaht-lee-POH-kah].		
1	Name this feathered serpent, a son of Coatlicue [kwaht-LEE-kway] whom the Aztecs credit with the introduction of maize and their calendar.	**Quetzalcoatl** [KET-zahl-KWAH-tul]
2	Quetzalcoatl's twin, Xolotl [shoh-LOH-tul], guides these people to Mictlan [MEEK-t'-lahn] in his role as psychopomp. In Greek myth, Charon helps these people cross a river.	**dead** people [accept similar answers like **deceased** people]
3	After stealing bones from Mictlan, Quetzalcoatl created the fifth race of man by mixing this substance with the bones.	his own **blood**

Question #11: Science – Biology

10 points per part

	The first part of this structure is fed by Brunner's glands, and the last part contains Peyer's patches.	
1	Name this digestive organ that is a little over 20 feet long in an average human.	**small intestine**s [accept **small bowel**s; prompt on **intestine**s or **bowel**s]
2	The small intestine begins with the duodenum [doo-AH-dih-num] and ends with the ileum [IL-ee-um]. What is the name for the middle section?	**jejunum** [juh-JOO-num]
3	The jejunum and ileum are supported by this double fold of the peritoneum. The artery that supplies the intestines is named for this structure.	**mesentery** [MEZ-in-"Terry"] [accept **mesenteric** artery]

Question #12: Science – Biology

10 points per part

	Endocytosis [EN-doh-sy-TOH-siss], the process of bringing things into a cell, starts in endosomes [EN-doh-sohmz] and ends in these organelles.	
1	Name these organelles. They are very acidic vesicles [VESS-ih-kulz] with many enzymes used to break down molecules.	**lysosome**s ["LIE-so"-sohmz]
2	Most of the enzymes in lysosomes are produced in the rough type of this organelle.	rough **endoplasmic reticulum** [accept rough **ER**]
3	This class of diseases, including Gaucher [goh-shay] disease and Tay-Sachs, occur when there are faulty enzymes in the lysosome.	lysosomal **storage** diseases [accept **LSD**s]

Question #13: Mathematics – Geometry

10 points per part

	If a quadrilateral has four congruent sides, it must be this kind of shape, though it is not *necessarily* a square.	
1	Name this shape.	**rhomb**us(es) [accept **rhomb**i]
2	Find the area of a rhombus whose *diagonals* measure 8 units and 10 units.	**40** square units
3	If a rhombus has two interior angles that each measure 42°, find the measure of the other two angles. It's the same measure for both of the other ones, and you should give the measure of a single angle.	**138** degrees

Question #14: Mathematics – Geometry

10 points per part

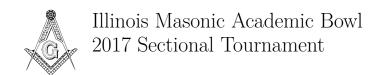|	If two conic sections have the same eccentricity, they have this geometric property.	
1	Name this relationship that, for two polygons, means corresponding angles are congruent and corresponding side lengths are *proportional*.	**similar**ity [accept **similar**ness; do not accept "congruence" or "congruent"]
2	What is the ratio of the hypotenuse's ["hi-POT-uh-noose's"] length to the shorter leg's length in a triangle that has angles of 30°, 60°, and 90°?	**2** (to 1)
3	What is the ratio of the longest side to either of the other sides in an isosceles ["eye"-SAH-suh-leez] triangle that has a 120° angle and two 30° angles?	$\sqrt{3}$ ["the square **root** of **3**" or "**radical 3**"]

Question #15: Social Studies – U.S. History

10 points

This person resigned his commission as a colonel in the U.S. Army Air Corps after President Franklin Roosevelt criticized him, but he later flew about 50 missions as a civilian. This person claimed that Roosevelt, the British, and Jews were pushing America into World War II when he was a spokesman for the America First Committee. Bruno Hauptmann was executed for killing and kidnapping this person's infant son in 1932. Name this person who became the first *Time* magazine "Man of the Year" after he flew from New York to Paris in the *Spirit of St. Louis*.	Charles **Lindbergh**

Question #16: Literature – British Literature

10 points

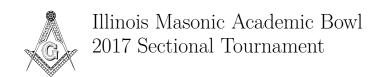|	
In this novel, the phrase "a handsome modern building, well situated on rising ground" is used to describe Rosings, the home of Anne de Bourgh [burg] and her mother Lady Catherine. This novel opens with the news that a "young man of large fortune" is purchasing Netherfield. That man, Mr. Charles Bingley, is contrasted several times in this novel with his friend Fitzwilliam Darcy. The protagonists of this novel are the older sisters of Mary, Kitty, and Lydia. Name this novel in which Jane and Elizabeth Bennet end up finding suitors, and which was written by Jane Austen.	***Pride and Prejudice***

Question #17: Science – Physics

10 points

The selectivity of a circuit measures how much it responds to changes in this quantity, and the selectivity then determines the circuit's Q factor. If this quantity equals the reciprocal of the square root of the quantity inductance times capacitance, then an alternating-current circuit experiences resonance. The difference in this property for two sound waves gives this property of the beat the waves create. The speed of a wave equals this quantity times wavelength. Name this quantity that determines the pitch of a sound, is the reciprocal of period, and is measured in hertz ["hurts"].	**frequency**

Question #18: Fine Arts – Art History

10 points

Some of this artist's works were based on Charles Moore's photographs of police dogs attacking people. Those works, inaccurately titled *Race Riot*, were part of this artist's *Death and Disaster* series that also includes his *Car Crash* and *Electric Chair*. This person's studio was called "The Factory", and performers such as David Bowie and Lou Reed often were there. This person made the *Marilyn Diptych [DIP-tik]* shortly after the death of Marilyn Monroe, showing one of her publicity photographs 50 times. Name this pop artist who often used silkscreens to show objects such as *Campbell's Soup Cans*.	Andy **Warhol** [or Andrew **Warhola**]

Question #19: Mathematics – Math Concepts

10 points

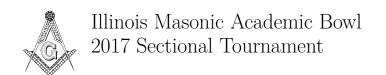|	
If two complex numbers are represented in polar, or cis ["sis"] form, one of the steps in performing this operation is subtracting the angles. If two complex numbers are represented in rectangular form, one of the steps in performing this operation is multiplying by a conjugate. With some polynomials, this operation can be performed "synthetically", and it can always be done the "long" way. This operation is not defined if the second input equals the additive identity. It is implicit in fractions. Name this operation that, when solving an equation, is canceled by multiplication.	**division** [or **dividing**; accept **divide** or (taking or finding the) **quotient**]

Question #20: Literature – World Literature

10 points

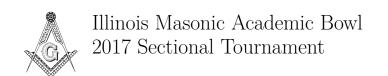|	
This author wrote about a 20,000-foot-tall "spirited young man" from the star Sirius in the short story "Micromégas." In a letter to the anonymous author of *The Three Impostors*, this person wrote "If God did not exist, it would be necessary to invent him." One character created by this author is kicked out of the castle of the Baron Thunder-ten-Tronckh for kissing Cunégonde [koo-nay-gawnd]. That character is taught that he lives in "the best of all possible worlds" by Dr. Pangloss. Name this French satirist who wrote *Candide.*	**Voltaire** [or Francois-Marie **Arouet**]

Question #21: Mathematics – Pre-Calculus

10 points per part

	An example of this type of function is that f of x equals $x - 2$ if x is less than 3, and f of x equals $x + 3$ if x is greater than or equal to 3.	
1	Give the term for a function that is defined differently for different parts of its domain.	**piecewise**-defined function
2	If at a transition between two definitions, the piecewise function's limit is the same from both sides and the function is defined at the transition, then the function has this property.	**continuity** (at that point) or **continuous** (at that point)
3	g of x equals $x + k$ when x is less than 2, and g of x equals $3x$ if x is greater than or equal to 2. Find the value of k that makes g continuous at $x = 2$.	$k = \underline{\mathbf{4}}$

Question #22: Mathematics – Pre-Calculus

10 points per part

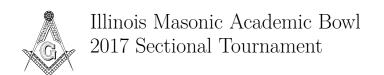|	This method of proof is often compared to a line of dominoes, each of which knocks down the next.	
1	Name this method of proof in which a basis case is shown to be true, and then it is shown that if the statement is true for some integer n, then it must also be true for $n + 1$.	proof by (mathematical) **induction** or **inductive** proof
2	Induction can be used to show that if you add up consecutive *odd* positive integers starting with 1, you will always get one of these numbers. Give the most specific reasonable answer.	perfect **square**s or **square** numbers [or **square**s of integers or **square**s of natural numbers]
3	Induction can also be used to show that 2^{3n} ["2 raised to the $3n$ power"], minus 3^n ["3 raised to the n power"] is always divisible by this integer greater than one.	$\underline{\mathbf{5}}$

Question #23: Social Studies – U.S. History

10 points per part

	This general lost the Battle of Kennesaw [KEN-ih-saw] Mountain, but that didn't stop his advance.	
1	Name this Union general whose Savannah Campaign is called the March to the Sea.	William Tecumseh **Sherman**
2	Just before his March to the Sea, and just before Lincoln's re-election, Sherman captured this major city.	**Atlanta**, Georgia
3	Sherman faced two Confederate generals with this last name. One of them forced him back at Shiloh ["SHY"-low], and the other was replaced by John Bell Hood in the defense of Atlanta.	**Johnston** [do not accept or prompt on "Johnson"] (Joseph Eggleston and Albert Sidney)

Question #24: Social Studies – U.S. History

10 points per part

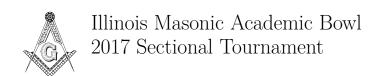|	The title concept of this work "will tell us, that the power which hath endeavoured to subdue us, is of all others, the most improper to defend us".	
1	Name this very widely read 1776 pamphlet that was "Addressed to the Inhabitants of America".	***Common Sense***
2	Name the author of *Common Sense*.	Thomas **Paine**
3	While in prison, Paine worked on this book supporting Deism [DEE-"ism"]. It is subtitled *Being an Investigation of True and Fabulous Theology*.	*The **Age of Reason***

Question #25: Science – Chemistry

10 points per part

	It is approximately 96,000 coulombs per mole.	
1	Identify this constant named for an English scientist, and used in the laws of electrolysis [uh-lek-TRAH-luh-siss] that he developed.	**Faraday**'s constant
2	In electrolysis, ions are separated into negatively-charged ions called anions ["an-ions"] and these positively-charged ions.	**cation**s ["CAT-ions"]
3	Faraday's constant is also used in this equation, which is used to find the reduction potential of a half-cell using the logarithm of the reaction quotient.	**Nernst** equation

Question #26: Science – Chemistry

10 points per part

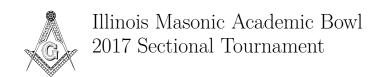|	The first law of this topic states that the energy of an isolated system remains constant, and the second law states that entropy never decreases in a closed system.	
1	Name this branch of science concerned with heat and energy.	**thermo**dynamics
2	The third law of thermodynamics states that the entropy of a pure crystal would be zero if this condition were reached.	**absolute zero** temperature [or **zero kelvin**s]
3	One definition of entropy states that it equals this constant times the natural log of the number of microstates of a system.	**Boltzmann**'s constant [prompt on k or k_B]

Question #27: Literature – British Literature

10 points per part

	This object is an "unravish'd bride of quietness" and a "sylvan historian" that tells a tale "more sweetly than our rhyme".	
1	Name this piece of pottery, which will remain a friend to a man "when old age shall this generation waste".	(Ode on a) **Grecian Urn** [prompt on **urn**]
2	This Romantic poet wrote "Ode on a Grecian Urn".	John **Keats**
3	The end of "Ode on a Grecian Urn" states that this five-word phrase is "all ye know on earth, and all ye need to know".	**Beauty is truth, truth beauty**

Question #28: Literature – British Literature

10 points per part

	This character was Marley's only mourner.	
1	Name this businessman who owned a counting-house, and who claimed that a ghost could have been "an undigested bit of beef, a blot of mustard, a crumb of cheese, a fragment of an underdone potato".	**Ebenezer Scrooge** [accept either]
2	Ebenezer Scrooge appears in this author's *A Christmas Carol*.	Charles (John Huffam) **Dickens**
3	Near the end of the novel, this son of Bob Cratchit utters the line "God Bless us every one."	Tiny **Tim** (Cratchit)

Question #29: Social Studies – World History

10 points

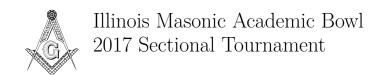|	
One of the coups [koos] in this country was code-named Operation Fair Play and led to its prime minister losing power in 1977 and being hanged in 1979. The leader of that coup remained in power until he died in a 1988 plane crash. Sa'ad Babrak assassinated this country's first prime minister, Liaquat [lee-AH-kaht] Ali Khan, in 1951. This country's founding father, who died as it was being created, was Muhammad Ali Jinnah. In 1971, this country lost the territory that is now Bangladesh. Name this Muslim country on the Indian subcontinent, whose capital is Islamabad.	(Islamic Republic of) **Pakistan** [or (Jamhuryat Islami) **Pakistan**]

Question #30: Mathematics – Math Concepts

10 points

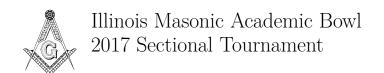|	
These objects are the subject of both of Tarski's fundamental relations, with the second of those relations defining what it means for two of these things to be congruent. A degenerate ellipse for which the focal length equals the length of the semimajor axis is really one of these things. A vector can be thought of as one of these shapes with a direction. A chord is an example of one of these objects within a circle, and the edges of polygons ["POLY"-gahnz] and polyhedra ["poly"-HEE-druh] are these things. Name these mathematical things that can be extended in one direction to form a ray, or in both directions to form a line.	line **segment**s [do not accept or prompt on "line(s)"]

Question #31: Literature – U.S. Literature

10 points

The narrator of this work describes being "in rats' alley, where the dead men lost their bones". Phlebas the Phoenician ["FLEE-bus the" foh-NEE-shun] is the subject of this poem's section "Death By Water". In this poem, a bad cold does not prevent Madame Sosostris from being "the wisest woman in Europe". This poem was dedicated to "the best blacksmith", Ezra Pound, who gave detailed advice to this poem's writer as the work was written. This poem ends with the words "shantih shantih shantih". Name this poem whose opening line claims that "April is the cruellest month", by T. S. Eliot.	"The **Waste Land**"

Question #32: Science – Biology

10 points

This virus is closely related to the virus that causes infectious salmon anemia [uh-NEE-mee-uh] virus. Oseltamivir [OH-sel-TAM-uh-vir] stops this virus from binding to sialic [sy-AL-ik] acid residues. This virus consists of eight RNA strands, and codes for various hemagglutinin [hee-muh-GLOO-tuh-nin] and neuraminidase [nur-uh-MIN-uh-dayss] surface proteins, so variants of this virus have names like "H1N1", which was spread by pigs in 2009. Identify this virus that caused an 1918 epidemic named for Spain.	in**flu**enza (A or B) virus [accept swine **flu**]

Extra Question #1: Mathematics – Math Concepts

10 points

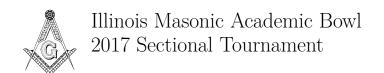|	
This function is not defined in rings but is defined for each individual element of a field. For positive inputs, the integral of this function is the natural logarithm function. One way to define the golden ratio is that it's the positive number that is one more than this function of itself. The graph of this function is a hyperbola ["hi"-PUR-buh-luh] whose asymptotes ["ass-imp-totes"] are the x- and y-axes. Name this function that returns 1 divided by the input, or equivalently, the input raised to the negative-first power.	**reciprocal** or **multiplicative inverse** [prompt on **inverse**; accept $f(x) = \mathbf{1/x}$ where x is any letter; accept $y = \mathbf{1/x}$ where x is any letter]

Extra Question #2: Social Studies – U.S. History

10 points

This state is not New Jersey, but it is where troops under General Horatio Gates were badly defeated by Redcoats under Charles Cornwallis at the Battle of Camden. The United States had a major victory in this state when Daniel Morgan defeated Banastre Tarleton ["banister" TAR-ul-tun] at Cowpens. This was the home state of the vice president under John Quincy Adams and the first term of Andrew Jackson, who resigned after his wife's involvement in the Peggy Eaton affair and his support of nullification. Name this home state of John Calhoun, the location where the Civil War started at Fort Sumter in Charleston Harbor.	**South Carolina**

Extra Question #3: Science – Health

10 points

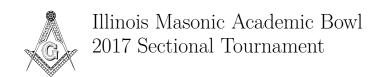|	
The enzyme PCSK9 binds to receptors for this molecule. Gallstones consist of either bilirubin [BIL-ih-roo-bin] or these molecules, and it is more likely to be these molecules in people with insufficient melatonin [MEL-uh-TOH-nin]. Lipoproteins ["LIE"-poh-"proteins"] transport triglycerides [try-GLISS-uh-"rides"] and these molecules in the body. Low-density lipoproteins can move these molecules to arteries, and it is unhealthy if they build up there. Healthy blood tests show this molecule at less than 200 milligrams per deciliter [DESS-uh-"liter"] of blood. Eating trans fats elevates the bad type of this molecule, and decreases the good type. Name these lipid molecules often blamed for cardiovascular disease.	**cholesterol** [accept more specific answers; prompt on **lipid**s before they are mentioned, prompt on **HDL** or **LDL** before "lipoproteins"]

Extra Question #4: Fine Arts – Composers of the Modern Era

10 points

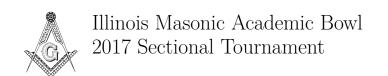|	
During the last few years of this composer's life, he named his pieces based on the number of performers, including 13 pieces named *One* and the largest piece, *108*. This composer made several works that referred to James Joyce's *Finnegans Wake*, including "The Wonderful Widow of Eighteen Springs" and "Roaratorio" ["roar"-uh-TOR-ee-oh]. In this composer's *Sonatas and Interludes*, he gave instructions about adding screws, rubber, and an eraser to the piano, which he called the prepared piano. Name this 20th-century composer who wrote a song that consists only of environmental sound, "Four minutes, 33 seconds."	John (Milton) **Cage** (Jr.)

Extra Question #5: Literature – World Literature

10 points

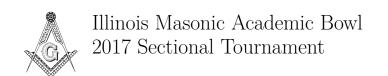|	
In one novel set in this country, a character tries to go to Prince Albert with his mother's ashes, and is a hare-lipped gardener named Michael K. In another novel set in this nation, the Smales family escapes to the village of their servant, while in a third novel set in this country, Arthur Jarvis is killed by Absalom, the son of Stephen Kumalo. The author of *July's People*, Nadine Gordimer, and J. M. Coetzee [kut-SEE] are from what country, the setting of Alan Paton's *Cry, the Beloved Country*, which features a father traveling to Johannesburg?	(Republic of) **South Africa**

Extra Question #6: Social Studies – World History

10 points per part

	As part of Operation Menu during the Vietnam War, the United States dropped many bombs on Laos and this country.	
1	Name this country where in 1970 Prince Sihanouk [SEE-uh-nook] was removed from power and replaced by Lon Nol.	(Kingdom of) **Cambodia** [or (Preah Reacheanachak) **Kampuchea**]
2	This is the name of the Communist Party in Cambodia. They won control of the country in a Civil War during the 1970s during which hundreds of thousands of people died.	**Khmer Rouge** [or **Khmers rouges** or **Red Khmers**]
3	In 1975, this Communist movement gained control of Laos, which was then ruled by the People's Revolutionary Party. This group is aligned with the Lao Patriotic Front, and its name means Lao Country.	**Pathet** Lao

Extra Question #7: Social Studies – World History

10 points per part

	The unification of Italy was considered complete when King Victor Emmanuel II made Rome the Italian capital in 1871.	
1	This Italian word, sometimes translated as "rising again", was the name of the unification movement.	**Risorgimento** [ree-zor-jee-MEN-toh]
2	This general led the Expedition of the Thousand that ended up bringing the Kingdom of the Two Sicilies into Italy.	Giuseppe **Garibaldi** [or Joseph-Marie **Garibaldi**]
3	The Expedition of the Thousand overthrew this last king of the Two Sicilies.	**Francis II** [prompt on **Francis**]

Extra Question #8: Mathematics – Trigonometry

10 points per part

	In this type of formula for the sine function, one side is 2 times the sine of x times the cosine of x, while for the cosine formula there are several ways to write this type of identity.	
1	Name this type of identity.	**double-angle** formulas or **double-angle** identities [accept **sine 2x** or **cosine 2x**]
2	If the cosine of x is $\frac{3}{4}$, what is the cosine of $2x$?	**1/8** [or 0.**125**]
3	The double-angle formulas can be considered special cases of this type of formula. For the cosine function, one side of this formula is cosine x times cosine y minus sine x times sine y.	**angle-addition** formulas or **angle-addition** identities [accept **sum** in place of **addition**]

Extra Question #9: Mathematics – Trigonometry

10 points per part

	For an acute angle in a right triangle, this function is the ratio of the length of the adjacent leg to the length of the opposite leg.	
1	Name this function, the reciprocal of the tangent function.	**cot**angent function [accept answers that additionally mention a variable]
2	Find the cotangent of 150 degrees.	$-\sqrt{3}$
3	If the cotangent of an acute angle is three-fourths, find the cosecant of that angle.	**5/4** [or **1 1/4** or **1.25**]