



Illinois Masonic Academic Bowl  
2018 State Tournament

**Round 3**  
**1st Section**  
**Toss-up Questions**

**Question #1: Science**

*10 points*

John Wheeler described the universe as being made of a “quantum” version of this type of material. Expanding or extruding the plastic **polystyrene** [**pah-lee-STY-reen**] makes one form of this type of material. This type of material is often made from **polyurethane** [**pah-lee-YUR-ih-thayn**] and can be used for air filter seals and insulation. Materials of this type are **colloids** [**KAH-loydz**] in which gas is dispersed. Plastic polymers are turned into this type of material to create bath sponges. Give this term for airy substances like whipped cream and the material that forms atop recently-poured carbonated beverages.

**foams** [prompt on **colloids** before it is mentioned]

**Question #2: Literature**

*10 points*

This language is not Icelandic, but it has several weak nouns, including its word for “heart”, which is the only neutral weak noun. This language uses the word “**weichei**” [**VIE-“shy”**], which literally means “soft egg”, to refer to people who are not tough. This language is traditionally written with the letter **eszett** [**EST-set**], which looks similar to a ‘B’ and sounds like an ‘S’. The three nominative articles in this language are “**der**” [**“dare”**], “**das**” [**dahss**], and “**die**” [**dee**], and other articles are used in this language’s three other cases. Three vowels in this language can be written with an **umlaut** [**OOM-“lout”**]. Compound nouns in this language are often extremely long. Name this language spoken in cities such as Zürich, Vienna, and Berlin.

**German** language [or **Deutsch**]



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**Toss-up Questions**

**Question #3: Social Studies**

*10 points*

The turning point of this battle was when the ships *Queen Charlotte* and *Detroit* got entangled. This battle was the first surrender by a complete British squadron, made by Robert Heriot Barclay. The winning commander in this battle received the surrender aboard the *Lawrence* after fighting on the *Niagara*. One of the commanders in this battle used James Lawrence's dying words from a few months earlier: "Don't give up the ship." The report sent after this battle stated "We have met the enemy and they are ours." Name this September 1813 victory by Oliver Hazard Perry.

Battle of **Lake Erie** [or  
Battle of **Put-in-Bay**]

**Question #4: Miscellaneous**

*10 points*

The type of this device named for Marman Products was originally used for cargo but is now used for aircraft fuel lines. The device of this type that includes a flat bar is often named after the letter 'F' because of its shape. Another type of this device is rounded on the outside, which explains why it is often named after the letter 'C' or 'G'. This portable tool has the same general purpose as a vise. Name this tool used to hold things together.

**clamps** [prompt on **clips**]



**Question #5: Literature**

10 points

In this book, the narrator gets even with Bobby Jorgenson by spooking him during a night shift. In this book, Dave Jensen breaks his nose with a pistol out of penance and later breaks his promise to kill Lee after a “wheelchair **wound** [**woond**]”. Jimmy Cross obsesses over Martha’s letters, and Henry Dobbins wears his girlfriend’s pantyhose around his neck in this book. This collection uses the word “humping” as a synonym for the verb in its title. The narrator describes his decision not to escape to Canada in the story “On the Rainy River”, part of what collection about the Vietnam war by Tim O’Brien.

*The Things They Carried* [accept “The Ghost Soldiers” before “breaks”]

**Question #6: Science**

10 points

Damage to this organ can be detected by checking AST and ALT enzyme blood levels. Glisson’s capsule holds the parts of this organ together, and the **falciform** [**FAL-sih-“form”**] ligament both attaches this organ to the body wall and divides its left and right lobes. This organ and the heart can be harmed by a buildup of iron in the body, a condition called **hemochromatosis** [**HEE-moh-KROH-muh-TOH-siss**]. This organ also can be harmed by the consumption of too much **acetaminophen** [**uh-SEE-toh-MIN-oh-fen**]. Diseases of this organ can lead to too much **bilirubin** [**BIL-ih-roo-bin**] in the body, which causes jaundice. In healthy people, this organ creates bile and **urea** [**yur-EE-uh**]. Name this organ that is damaged when people have hepatitis or cirrhosis.

**liver**



**Question #7: Mathematics**

*10 points per part*

This adjective describes lines that intersect but are not perpendicular.		
1	Give this adjective that is also an alternate name for slant or diagonal <b>asymptotes</b> ["ASS-imp-totes"].	<u>oblique</u>
2	Find the slope of the oblique asymptote of the rational function whose numerator is the quantity $3x$ squared plus $5x$ minus 3, and whose denominator is the quantity $2x$ plus 4.	<u><math>\frac{3}{2}</math></u> [or <u><math>1\frac{1}{2}</math></u> or <u>1.5</u> ]
3	Find the slope of either asymptote of the hyperbola whose equation is " $x$ squared over 16 [pause] minus $y$ squared over 9 [pause] equals 1".	<u><math>\frac{3}{4}</math></u> or <u>0.75</u> or <u><math>-\frac{3}{4}</math></u> or <u>-0.75</u>

**Question #8: Mathematics**

*10 points per part*

This mathematician's paper "On the Number of Primes Less Than a Given Magnitude" was the only thing he ever wrote about number theory, but it is one of the most influential papers in number theory.		
1	Identify this mathematician. "Sums" named for him are used to define and approximate integrals.	(Georg Friedrich) Bernhard <b>Riemann</b> [REE-mahn]
2	Find the integral, or area under the graph, of $y$ equals $x$ between $x$ equals 0 and $x$ equals 4.	<u>8</u>
3	Give the approximation of the same area using the <i>left</i> Riemann sum with four subintervals. The integral, once again, is $y$ equals $x$ , with $x$ going from 0 to 4.	<u>6</u>



Illinois Masonic Academic Bowl  
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**Round 3**  
**2nd Section**  
**Teamwork Questions**

**Question #9: Social Studies**

*10 points per part*

Answer the following about the Paraná River:		
<b>1</b>	It starts in this Brazilian state. This state shares its name with Brazil's most populous city, which has almost 9 million more inhabitants than Rio de Janeiro.	<u>São Paulo</u>
<b>2</b>	Brazil and Paraguay share this dam on the Paraná River that produces the most hydroelectric power in the world.	<u>Itaipu</u> [ee-"tie"-POO] Dam
<b>3</b>	The Paraná River flows into the Paraguay River, which in turn meets the Uruguay to form this river. Buenos Aires, Argentina and Montevideo, Uruguay are on opposite shores of this river.	Rio de la <u>Plata</u> [or La <u>Plata</u> River or River <u>Plate</u> ]

**Question #10: Social Studies**

*10 points per part*

Identify these African foods:		
<b>1</b>	This spongy bread made from teff flour is a culinary staple of Ethiopia and <u>Eritrea</u> ["air"-ih-TREE-uh], with most meals served atop it. This bread has been made in the city of Aksum for at least 5,000 years.	<u>injera</u>
<b>2</b>	This northwest African staple food consists of very small balls of semolina. In Morocco, it may be served alone as <u>sfouf</u> [suh-FOOF] or topped with vegetables.	<u>couscous</u>
<b>3</b>	The Moroccan drink <i>nous nous</i> is made of half milk and half this beverage. This product is the leading agricultural export of Ethiopia, to which its Arabica bean is native.	<u>coffee</u>



**Question #11: Science**

*10 points per part*

This German scientist stated two laws about circuits that are equivalent to the conservation of charge and the conservation of energy.		
<b>1</b>	Name this scientist. His junction law states that the current going into any point in a circuit must equal the current coming out of that point.	Gustav <u>Kirchhoff</u>
<b>2</b>	Kirchhoff's loop law is helpful when analyzing circuits with these components whose strength is measured in henries.	<u>inductors</u> [prompt on <u>solenoids</u> ]
<b>3</b>	Using Faraday's law of induction, the potential difference across an inductor equals the opposite of the derivative of this quantity with respect to time.	magnetic <u>flux</u> [prompt on <u>phi</u> ; do not accept "(magnetic) flux density"]

**Question #12: Science**

*10 points per part*

This state of matter was achieved using rubidium during the 1990s.		
<b>1</b>	Name this fifth state of matter that occurs at very low temperatures when groups of atoms enter a single quantum state.	<u>Bose-Einstein condensate</u> [accept <u>BEC</u> ]
<b>2</b>	Bose-Einstein condensates often have no <u>viscosity</u> [ <u>viss-KAH-sih-tee</u> ], which means they exhibit this property.	<u>superfluidity</u> [or <u>superfluids</u> ]
<b>3</b>	The ability of superfluids to go over obstacles by forming a Rollin film is named for this Dutch scientist who first made liquid helium and used it to discover superconductivity.	<u>Heike Kamerlingh Onnes</u> [ <u>HY-kuh KAM-ur-leeng OH-nuss</u> ] [prompt on partial last name]



**Question #13: Literature**

*10 points per part*

This poem states “It is the hour of departure.”		
<b>1</b>	Identify this poem that begins “The memory of you emerges from the night around me” and repeats “In you everything sank.”	“The <b>Song of Despair</b> ” or “A <b>Song of Despair</b> ” [or “ <b>canción desesperada</b> ”]
<b>2</b>	This Chilean poet wrote <i>Twenty Love Poems and a Song of Despair</i> .	Pablo <b>Neruda</b> [nay-ROO-dah] [or Neftali Ricardo <b>Reyes</b> Basoalto]
<b>3</b>	The last of the 20 love poems gives “The night is shattered / and the blue stars shiver in the distance” as an example of one of these compositions. That poem’s title claims that “Tonight I Can Write [these compositions]”.	the <b>saddest lines</b> [or los <b>versos más tristes</b> ; prompt on <b>lines</b> or <b>versos</b> ]

**Question #14: Literature**

*10 points per part*

This man gives a so-called “sermon” in which he rejects a woman’s advances because marriage would bore him.		
<b>1</b>	Identify this title character of a verse novel who kills Vladimir Lensky in a duel. As a young man, he was pursued by Tatyana, but later he pursues her.	<b>Eugene Onegin</b> [accept either]
<b>2</b>	This Russian poet wrote <i>Eugene Onegin</i> .	Alexander <b>Pushkin</b>
<b>3</b>	Pushkin adapted a fairy tale into this story about a prince who lives far from home and is turned into a series of insects, which allows him to harm his mother’s sisters.	“The Tale of <b>Tsar Saltan</b> ” [or “Skazka o <b>Tsaryeh Saltanyeh</b> ”]



**Question #15: Mathematics**

*10 points*

The rank of a skew-symmetric matrix is always this kind of integer. Multiplying two random integers by each other gives this kind of number  $\frac{3}{4}$  of the time. All the exponents in the Maclaurin series expansions of the secant and cosine functions are positive integers of this type. It is believed that all of these numbers greater than 3 can be written as a sum of primes, a statement called Goldbach's conjecture. Raising a negative number to an exponent that has this property gives a positive number. Adding any integer to itself gives one of these numbers. Give this term for integers divisible by 2.

even numbers [or evens]

**Question #16: Social Studies**

*10 points*

This ability is the subject of Matt Huentelman's MindCrowd Project. The ease with which this ability can be altered was the subject of Elizabeth Loftus and John Palmer's Car Crash Experiment, which explored the impact of different verbs. Though they were actually in an experiment on obedience, participants in the Milgram experiment falsely believed that the experiment was focused on this ability. Processing information and a form of this ability was the subject of George Miller's paper "The Magical Number Seven, Plus or Minus Two". That paper addressed the working form of this ability, which is very similar to its short-term form. Name this ability to store and retrieve information.

memory [accept remembering and other casual synonyms]





Illinois Masonic Academic Bowl  
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**Round 3**  
**3rd Section**  
**Toss-up Questions**

**Question #17: Fine Arts**

10 points

A musical about this person ends with her singing, “Never hope to understand, love is a barrel land, a lonely land, a lonely land” in “Deep Song”. This singer recorded “Any Old Time” with the Artie Shaw Band, but the stresses of integrating his band caused them to part ways. This person famously performed “Fine and Mellow” on television on *The Sound of Jazz* with Lester Young. This person sang about lynchings on poplar trees in the song “Strange Fruit”. Name this singer nicknamed Lady Day who sang “God Bless the Child”.

Billie Holiday [or  
Eleanora Fagan]

**Question #18: Literature**

10 points

At the beginning of this novel the narrator remembers his experiences in 1923 during Eights Week, which is a series of boat races. Another character in this novel—who arrives in Hardcastle’s car with wine and strawberries—has sisters named Cordelia and Julia, the latter of whom eventually marries Rex Mottram. That person’s father, who converted from Anglicanism to Roman Catholicism, is Lord Marchmain. In this novel, Aloysius [al-oh-ISH-uss] is a teddy bear belonging to Sebastian Flyte. Name this novel narrated by Charles Ryder that was written by Evelyn Waugh.

*Brideshead Revisited*,  
*The Sacred & Profane*  
*Memories of Captain*  
*Charles Ryder*)



**Question #19: Science**

*10 points*

The relationship between the current and the saturation current in these devices is given by an equation developed by transistor co-inventor William Shockley. That equation includes an ideality factor dependent on this object's depletion region and a thermal voltage that depends on the temperature of the p-n junction. A two-electrode vacuum tube can be used as this kind of device. Ideally, these devices have infinite resistance in one direction and no resistance in the other direction. Name this type of electronic device, some of which are light-emitting.

**diodes** ["DIE-odes"]

**Question #20: Social Studies**

*10 points*

This person did not attend the surrender ceremony of Negus Mikael because Mikael was the grandfather of this person's wife Menen Asfaw. This person was the first chair of the Organisation of African Unity, which he hosted in his country. This leader replaced the **Fetha Nagast** [FET-ah NAH-gahst] with a written constitution declaring that all leaders would descend from him and that he was a descendant of Solomon. Following the Wollo famine, this leader was deposed and replaced with a committee called the Derg in 1974. Name this leader who was temporarily exiled from his country in 1936 following Italy's invasion of Ethiopia.

**Haile Selassie** ["highly" seh-LAH-see] I [or Tafari **Makonnen** Woldemikael; prompt on **Selassie**]



Illinois Masonic Academic Bowl  
2018 State Tournament

**Round 3**  
**4th Section**  
**Teamwork Questions**

**Question #21: Literature**

*10 points per part*

This character “sang his didn’t and danced his did”.		
<b>1</b>	Identify this character whose wife “laughed his joy” and “cried his grief” in a poem about his “pretty how town.”	<u>anyone</u>
<b>2</b>	“anyone lived in a pretty how town” is a work by this poet of “i sing of Olaf glad and big” who used irregular punctuation and capitalization.	E(dward) E(stlin) <u>Cummings</u>
<b>3</b>	In “since feeling is first”, Cummings wrote that this concept “is no parenthesis.” In “Buffalo Bill’s”, Cummings asks the personification of this concept “how do you like your blue-eyed boy?”	<u>death</u> or <u>Mister Death</u>

**Question #22: Literature**

*10 points per part*

This novel’s protagonist buys an expensive jacket for Hortense Briggs, but she spurns him.		
<b>1</b>	Name this novel in which Clyde Griffiths moves from Kansas City to New York, where he kills Roberta Alden while boating on a lake.	An <u><i>American Tragedy</i></u>
<b>2</b>	This author wrote <i>An American Tragedy</i> .	Theodore (Herman Albert) <u>Dreiser</u>
<b>3</b>	Theodore Dreiser is imagined as a boy intently watching a crawfish in one entry of this collection. This collection also contains the poems “Trainor, the Druggist” and “The Hill”.	<u><i>Spoon River Anthology</i></u>



**Question #23: Science**

*10 points per part*

Answer the following about gases involved in geologic processes:		
<b>1</b>	This rock, a product of rapid cooling and depressurization after a volcanic eruption, is less dense than water and contains vesicles, or air pockets.	<u>pumice</u> [PUM-iss]
<b>2</b>	This term refers to a crystal structure that traps a gas, such as methane, in its lattice.	<u>clathrate</u> (s) [prompt on <u>hydrate</u> (s)]
<b>3</b>	The ratio of isotopes 16 and 18 of this element can be used to determine the temperature of the climate when air was trapped in bubbles in ice cores.	<u>oxygen</u> [accept <u>O</u> or <u>O<sub>2</sub></u> ]

**Question #24: Science**

*10 points per part*

Answer the following about science you can observe at the beach:		
<b>1</b>	This term refers to particles, common on beaches, that are smaller than pebbles but larger than silt.	<u>sand</u>
<b>2</b>	The sand you stick your toes in may have reached the beach by creep or by this other process, where water “bounces” larger particles along the sea floor.	<u>saltation</u> [or <u>saltating</u> or <u>saltate</u> ]
<b>3</b>	A beach in Hawaii has green sand due to the presence of this rock, a solution of <u>forsterite</u> [FOR-stuh-“rite”] and <u>fayalite</u> [FAY-uh-“lite”] that comprises the gemstones <u>peridot</u> [“PAIR-uh-dot”].	<u>olivine</u> [AH-lih-“vine”]



Illinois Masonic Academic Bowl  
2018 State Tournament

**Round 3**  
**4th Section**  
**Teamwork Questions**

**Question #25: Fine Arts**

*10 points per part*

The first two movements of this piece are subtitled “the Bringer of War” and “the Bringer of Peace”.		
1	Name this early-20th-century composition by Gustav Holst.	<i>The <u>Planets</u></i>
2	Holst had a long friendship with this composer of <i>Fantasia on a Theme by Thomas Tallis</i> and <i>The Lark Ascending</i> .	<u>Ralph [rayff] Vaughan Williams</u> [prompt on partial last name]
3	Holst wrote <i>The Planets</i> while he was a teacher at this school. There is a lively jig at the beginning of a suite that Holst named for this school.	<u>St. Paul’s</u> (Girls’) School

**Question #26: Fine Arts**

*10 points per part*

This composer referred to 13 of his pieces, including <i>Les préludes</i> [ley pray-lood], as symphonic poems.		
1	Name this composer of the <i>Hungarian Rhapsodies</i> .	Franz (Ritter von) <u>Liszt</u> [“list”] [or <u>Liszt</u> Ferenc]
2	This collection of 12 solo piano pieces by Liszt includes <i>Preludio</i> and <i>Mazeppa</i> .	<u>Transcendental Études</u> [ay-toodz] [or <u>Études d’exécution transcendante</u> ]
3	Liszt led five other composers to write the <i>Hexameron</i> [“hex”-AM-ur-ahn], which is a set of variations based on a theme from this composer’s opera <i>I puritani</i> .	<u>Vincenzo</u> (Salvatore Carmelo Francesco) <u>Bellini</u> [veen-CHEN-zoh bay-LEE-nee]



**Question #27: Social Studies**

*10 points per part*

This African country was formed in 1964 by the merger of a mainland country and an island nation.		
<b>1</b>	Name this country that has transferred its capital from Dar-es-Salaam to Dodoma.	(United Republic of) <b>Tanzania</b> [tan-zuh-NEE-uh]
<b>2</b>	This person was the president of Tanganyika and then Tanzania until he stepped down in 1985. He issued an explanation of socialist policies called the Arusha Declaration.	Julius (Kambarage) <b>Nyerere</b> [nyeh-REH-reh]
<b>3</b>	In 1978, Tanzania invaded Uganda and eventually forced this Ugandan leader to leave his country.	Idi <b>Amin</b> (Dada)

**Question #28: Social Studies**

*10 points per part*

This country's current president is Daniel Ortega, who belongs to the <b>Sandinista</b> [san-din-EE-stah] National Liberation Front.		
<b>1</b>	Name this Central American country where the Sandinistas fought the Contras in a 1980s civil war.	(Republic of) <b>Nicaragua</b> [or (República de) <b>Nicaragua</b> ]
<b>2</b>	The Nicaraguan Civil War followed 40 years of rule by this family responsible for the 1934 assassination of Augusto César Sandino.	<b>Somoza</b> family or <b>Somozas</b> [prompt on <b>Debayle</b> ]
<b>3</b>	This Catholic movement supported the poor in Latin America and opposed the Somozas. Pope Francis lifted a suspension against Miguel d'Escoto, one of its prominent members.	<b>liberation</b> theology [or teología de la <b>liberación</b> ]



**Question #29: Mathematics**

10 points

These mathematical things form “spaces” defined by 10 axioms, including closure under addition and scalar multiplication. A space in which these objects are the elements can be defined by a basis of these things. Partial derivatives can be combined to make a gradient, which is a “field” of these things. One binary operation on these objects that outputs a number is the Euclidean inner product, which is also called the dot product. Name these objects that have both a magnitude and direction.

vectors

**Question #30: Literature**

10 points

A speaker in this collection asks “Each morn a thousand roses brings, you say; / Yes, but where leaves the rose of yesterday?”. A character in this collection who “from that bowl has pour’d / millions of bubbles like us” is the cupbearer Saki. This collection warns that neither “piety nor wit” cannot “cancel half a line” written by the “moving finger”, which “having writ / moves on.” This poem was translated by Edward FitzGerald from Persian sources. The speaker of this collection shares “a jug of wine, a loaf of bread” with Thou. Identify this collection in 101 quatrains written by Omar Khayyam [ky-YAHM].

The ***Rubáiyát*** [roo-BY-ut]  
of Omar Khayyam



Illinois Masonic Academic Bowl  
2018 State Tournament

**Round 3**  
**5th Section**  
**Toss-up Questions**

**Question #31: Science**

10 points

A **phylum** [“FIE”-lum] of animals named for this division of plants because of their similar appearance forms colonies and has **ciliated** [SIL-ee-ay-tid] tentacles around its mouth called **lophophores** [“LOAF”-oh-forz]. Many common names of **lycopodia** [“lie”-koh-POH-dee-uh] are due to their resemblance to these plants. A type of this plant once used in pillows is called *Hypnum*, which is now often marketed as the “sheet” type of these plants. A genus called *Sphagnum* [S’FAG-num] in this division is important in the creation of peat. Like algae, these plants have **rhizoids** [“RYE”-zoydz] instead of roots. **Bryophytes** [BRY-oh-“fighths”] comprise liverworts, hornworts, and what division of non-vascular plants that can grow on rocks or tree bark?

**mosses** [prompt on  
**bryophytes** or  
**Bryophyta** before  
“Bryophytes”]

**Question #32: Social Studies**

10 points

The government of this place was structured by the Foraker Act and then the Jones-Shafroth Act. In 1950 people from this place attempted to assassinate President Truman at Blair House, and in 1954 people supporting independence for this place shot into the House of Representatives chamber from a balcony. This place is in a debt crisis that in 2016 led the U.S. Congress to pass **PROMESA** [proh-MAY-sah]. Many people moved from this place to the mainland U.S. in 2017 following Hurricane Maria. Name this U.S. territory in the Caribbean Sea whose capital is San Juan.

(Commonwealth of)  
**Puerto Rico** or (Estado  
Libre Asociado de)  
**Puerto Rico** or (Territory  
of) **Puerto Rico**





### Extra Question #1: Literature

10 points

In this novel, Myra joins a riot instead of protecting the mentally-challenged child Pierre, and Tia then throws a rock that hits the protagonist in the forehead. Near the beginning of this novel, Mr. Luttrell shoots his dog and drowns himself. This novel begins in **Coulibri** [koo-lee-bree], Jamaica, and it eventually moves to Thornfield Hall in England, particularly the attic thereof. This novel is about **Antoinette** [an-twah-net] Cosway, who is elsewhere known as Bertha Mason. Name this prequel to Charlotte Brontë's *Jane Eyre* by Jean Rhys.

**Wide Sargasso Sea**

### Extra Question #2: Science

10 points

The amount of energy available due to this process can be found using a measurement called CAPE. The lapse rate describes the change in temperature that occurs in air affected by this process. The **El Niño** [el NEEN-yoh] phenomenon is a change in the longitudinal form of this process. This process may temporarily occur in the usually-stable **stratosphere** [STRAT-oh-"sphere"] during an especially intense thunderstorm. Name this process in which heat is transferred by the movement of a fluid such as air.

(atmospheric) **convection**  
[or **convective** heat  
transfer or **convecting**]



**Extra Question #3: Fine Arts**

10 points

This person's music was defended by a writer using a pseudonym meaning "The Obtuse Academic", and his use of rising notes after a flattened note and descending notes after a sharpened one exemplified what he called the "second practice". This composer's aria "**Possente spirito**" [poh-SEN-tay SPEER-toh] is sung by a title character to Charon in an opera first performed in 1607. Another of this composer's operas is about Nero's mistress and is titled *The Coronation of Poppea* [poh-PAY-ah]. Name this early composer of Italian operas, including *L'Orfeo* [lor-FAY-oh].

Claudio Monteverdi

**Extra Question #4: Mathematics**

10 points

This shape is the locus of pedal points of a circle. The early work defining these shapes was done by Blaise Pascal's father. An **epitrochoid** [uh-PIT-roh-koyd] formed using circles of equal sizes is this type of shape, though its features depend on which point in the moving circle is traced. These shapes typically have two horizontal tangent lines and anywhere from two to four vertical tangent lines. These shapes may be dimpled or contain a loop, and if its two parameters are equal than this shape is a cardioid. Name this class of shapes generated by the equation " $r$  equals  $a$  plus  $b$  cosine theta".

limaçon(s)  
[LEEM-uh-saw]



**Extra Question #5: Social Studies**

*10 points*

Early in this war, the Russians abandoned their Siege of Silistra after Russian General Peter Dannenberg was forced to withdraw from the Battle of **Oltenitza** [ol-ten-EET-suh]. In the peace treaty after this war, Russia agreed to give back Kars, which it had besieged a few months earlier. A facility for wounded soldiers in **Scutari** [skoo-TAR-ee] was replaced with **Renkioi** [REN-kee-oy] Hospital after Florence Nightingale wrote letters. The Battle of Balaclava in this war inspired Alfred, Lord Tennyson's "Charge of the Light Brigade". Name this war in which European countries helped the Ottoman Empire on a namesake peninsula.

**Crimean** War



Illinois Masonic Academic Bowl  
2018 State Tournament

**Round 3**  
**Extra Section**  
**Teamwork Questions**

**Extra Question #6: Social Studies**

*10 points per part*

This path generally started in Elm Grove, Independence, or Westport, though it was not a single route		
<b>1</b>	Name this path used during the 19th century to get to the <b>Willamette</b> ["will-AM-it"] Valley and other western locations.	<u>Oregon Trail</u>
<b>2</b>	Getting through the Oregon Trail became easier after Native Americans told this person's partner Robert Stuart about the South Pass. Stuart helped this person start the Pacific Fur Company.	John Jacob <u>Astor</u>
<b>3</b>	This Secretary of State under James K. Polk settled the Oregon boundary dispute and later became president.	James <u>Buchanan</u>

**Extra Question #7: Social Studies**

*10 points per part*

This person was quoting an old song when he said "Old soldiers never die, they just fade away."		
<b>1</b>	Name this U.S. general whom President Truman fired during the Korean War.	Douglas <u>MacArthur</u>
<b>2</b>	During World War II General MacArthur was in Australia when he said "I came through and I shall return" about this country. He did indeed return.	(Republic of the) <u>Philippines</u> [or (Republika ng) <u>Pilipinas</u> ]
<b>3</b>	The Battle of the Sibuyan Sea touched off this massive 1944 naval battle in the Philippines Campaign. The Allies won.	Battle of <b>Leyte</b> [LAY-tuh] <u>Gulf</u> [prompt on <u>Leyte</u> ]



### Extra Question #8: Mathematics

*10 points per part*

If this segment is extended infinitely in both directions, the result is called a secant line.		
<b>1</b>	Give this term for a segment between two points on a circle.	<u>chord</u>
<b>2</b>	This theorem states that the midpoint of a chord is also the midpoint of two points on that chord that are generated by drawing chords through that midpoint and connected to their endpoints.	<u>butterfly</u> theorem
<b>3</b>	Find the length of a chord that is in a circle with a radius of 5 units, if the closest point on the chord is 3 units from the center of the circle.	<u>8</u> units

### Extra Question #9: Mathematics

*10 points per part*

A rope hanging under its own weight forms this shape.		
<b>1</b>	Name this shape formed by a hyperbolic cosine graph.	<u>catenary</u> [“CAT”-uh-nair-ee]
<b>2</b>	Of the six common hyperbolic trigonometric functions, two of their graphs have vertical <u>asymptotes</u> [“ASS-imp-totes”]. Name both of those functions.	hyperbolic <u>cotangent</u> and hyperbolic <u>cosecant</u> [either order; accept <u>coth</u> and <u>csch</u> ]
<b>3</b>	Find the hyperbolic cosine of 0.	<u>1</u>