

## Round 1 1st Section Toss-up Questions

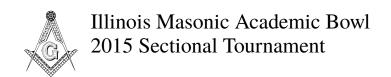
## **Question #1: Mathematics – Math Concepts**

10 points

The symmetry of this quadrilateral is	<b>square</b> s
dihedral [die-HEE-drul] group D4, and its rotational	
symmetry is order four. This shape is generated by the	
graph of the relation the absolute value of x plus the	
absolute value of y equals a constant. This quadrilateral	
has diagonals that are both congruent to each other and	
perpendicular bisectors. This regular quadrilateral is a	
rhombus with right angles. Each of the faces of a cube	
is one of these shapes. Name this shape that is a	
rectangle with congruent sides.	

## **Question #2: Social Studies – World History**

Allied forces in this country, as part of Operation	Arab Republic of <b>Egypt</b>
Bertram, built dummy tanks and disguised the real	
ones. This country's site of Sidi Barrani [sih-dee	
bah-RAH-nee] was the launching point for an Italian	
invasion that failed. Following victory at	
Tobruk [TOE-bruk], Erwin Rommel led an invasion of	
this country, but was stopped at El	
Alamein [ah-lah-MAIN]. Forces from what is now this	
country fought the Hittites at the Battle of	
Kadesh [KAH-desh] under Ramesses [RAM-sees] the	
Second, one of its New Kingdom pharaohs. Name this	
North African country that is the home of the Suez	
Canal.	



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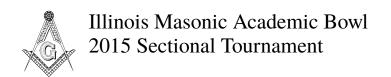
## **Question #3: Science – Chemistry**

10 points

This element is commonly used to isolate silicon from	$\underline{\mathbf{carbon}}$ [prompt on $\underline{\mathbf{C}}$ ]
silica. This element also makes up lampblack, which is	
used in tires and dry cell batteries. An acid named for	
this element is blamed for ocean acidification. This	
element is added to iron to make pig iron, and some	
remains when the pig iron is purified into steel.	
Because one allotrope of this element is shaped like a	
geodesic dome, it is called buckminsterfullerene. This	
is also the primary element in coal. Name this element	
found in graphite, diamonds, and organic compounds.	

## **Question #4: Fine Arts – Classical Music & Opera**

This composer's Ave [AH-vay] Verum Corpus was his	Wolfgang Amadeus Mozart
final completed piece of liturgical music. His	
symphonies include ones named for Prague and the	
Haffner family. His 41st symphony in C major ends	
with a 5-part double fugue, and as a child his father	
Leopold forced him to tour Europe with his sister	
Nannerl. Name this child prodigy who composed the	
"Jupiter" Symphony and Eine Kleine	
Nachtmusik [EYE-nuh KLIE-nuh NAKT-myoo-sik].	



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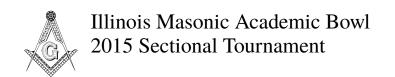
#### **Question #5: Literature – U.S. Literature**

10 points

The narrator of this poem compares himself to an apple	"Mending Wall"
orchard, and he compares another man to a pine. This	
work contains a complaint about hunters who please	
their yelping dogs; the narrator has to follow up after	
them to fix the title object. The spell "stay where you	
are until our backs are turned" is used on the boulders	
that made up the title structure. Name this Robert Frost	
poem in which the narrator says "good fences make	
good neighbors."	

## **Question #6: Social Studies – Geography**

This state is home to the Misty Fjords National	<u>Alaska</u>
Monument, which is part of Tongass [TON-gus]	
National Forest. Some cities in this state, such as	
Wrangell [RAIN-gul] and Yakutat [YA-kuh-tat] are	
considered their own boroughs. This state's Bush is	
home to such towns as Kotzebue [KOTZ-bway] and	
Barrow. This state contains Denali National Park and	
Preserve, the home of Mount McKinley, and this state	
also includes the Aleutian [ah-LOO-shun] Islands.	
Called "Seward's Folly" upon Russia's sale of it to the	
US, name this northernmost state.	



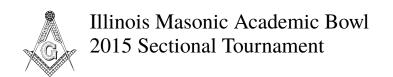
## **Question #7: Science – Biology**

10 points per part

Whe	en two of these structures are next to each other,	
they	are held together by a middle	
lame	ella [luh-MEH-luh].	
1	Name these rigid structures that surround cell	cell <u>wall</u> s
	membranes in plants, bacteria, and fungi.	
2	Cell walls contain this	cellulose
	polysaccharide [po-lee-SAK-uh-ride] which is	
	highly concentrated in cotton and used to make	
	paper.	
3	The middle lamella is made of this substance used	<u>pectin</u>
	in jellies.	

## **Question #8: Science – Biology**

Hun	nans have twelve pairs of these bones.	
1	Name these bones that surround several organs such as the heart and lungs.	<u>rib</u> s
2	Most of the ribs are connected to this bone known	<u>sternum</u>
	as the breastbone.	
3	This is the cartilage that connects the ribs to the	costal cartilage [prompt on
	sternum.	hyaline cartilage]



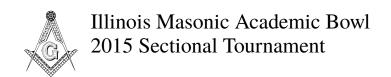
## **Question #9: Social Studies – Religion**

10 points per part

Hinduism, the embodied soul, or atman, is	
ouched by this process, which stops when one	
ieves moksha, or freedom from suffering.	
Name this concept of one's soul surviving after	reincarnation [accept word
death in the body of someone new.	forms and <u>rebirth</u> ]
During reincarnation cycles, one's soul still is impacted by this concept, the collection of one's	karma [do not accept "dharma"]
actions, as well as the results of those actions. One could reincarnate into a higher class if this was good.	Citatina j
In the <i>Bhagavad-Gita</i> [BAH-gah-vahd GEE-tah], karma is presented as one of these "paths" to achieve ultimate enlightenment and union with Brahman.	<b>yoga</b> s
•	death in the body of someone new.  During reincarnation cycles, one's soul still is impacted by this concept, the collection of one's actions, as well as the results of those actions. One could reincarnate into a higher class if this was good.  In the <i>Bhagavad-Gita</i> [BAH-gah-vahd GEE-tah], karma is presented as one of these "paths" to

## **Question #10: Social Studies – Religion**

The	founding of the church at Antioch is found within	
this	New Testament book.	
1	Name this Biblical book which describes a mission	Acts of the Apostles [accept
	from Antioch to Rome, as well as a split in the	Actus Apostolorum]
	early church between Hellenists and Hebrews.	
2	Chapter 9 of Acts contains the story of the	Paul the Apostle [accept
	conversion of this apostle. By the end of the book,	<u>Saul</u> of Tarsus]
	he is in jail and awaiting trial.	
3	This founder of the Coptic Church accompanied	John Mark [prompt on
	Paul on the mission to Antioch, along with	<u>John</u> ]
	Barnabas.	



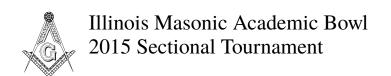
#### **Question #11: Mathematics – Statistics**

10 points per part

Tho	ugh there is no standard definition of this term, it	
can	be used to mean a percentage of scores lower than	
the	score being measured.	
1	Name this measure often used with standardized	<u>percentile</u>
	tests.	
2	If there are twenty students in a class, what percent	95 [percent or percentile]
	of the students scored lower than the	
	highest-scoring student?	
3	Rounded to the nearest whole number, what	84
	percentile corresponds to one standard deviation	
	above the mean in a normal distribution?	

#### **Question #12: Mathematics – Statistics**

Ans	wer these questions about trying to fit a curve to	
data		
1	This quantity equals the difference between the actual value of a function and the predicted theoretical value of the function. If there is a pattern to this quantity, then you should consider other curves for your fit.	<b>residual</b> s
2	If you fit a line to the two points $(2,8)$ and $(5,20)$ , what should be the slope of the line?	4
3	On that line, what is the residual for the point $(7,31)$ ?	3



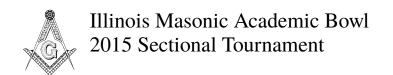
#### **Question #13: Literature – U.S. Literature**

10 points per part

This	"memory play" is narrated by a poet that works	
in a	shoe warehouse.	
1	Name this drama in which the narrator joins the merchant marine using funds meant to pay the electric bill. This leads to the lights going out during a dinner featuring the "gentleman caller" Jim O'Connor.	The Glass Menagerie
2	This author of <i>The Glass Menagerie</i> wrote about Big Daddy, Brick, and Maggie in <i>Cat on a Hot Tin</i>	Tennessee Williams
	Roof.	
3	Laura's favorite piece in the menagerie is a figure	<u>unicorn</u>
	of this mythical animal. After it is accidentally	
	broken, Laura gives it to Jim as a souvenir.	

#### **Question #14: Literature – U.S. Literature**

This	s writer satirized Hollywood moguls through the	
characters of Bobby Gould and Charlie Fox in		
Spe	ed-the-Plow.	
1	Name this dramatist who wrote about a junk shop owner's plans to steal back a coin he sold in <i>American Buffalo</i> .	David <u>Mamet</u>
2	This other David Mamet [MA-met] play featuring a robbery concerns the theft of prime leads [leeds] by Shelly Levene and Dave Moss, two real estate salesmen.	Glengarry Glen Ross
3	Following <i>Speed-the-Plow</i> , Mamet wrote a one-act play about Bobby Gould in this location. Jean-Paul Sartre said this place is other people, and Don Juan is often portrayed going to this place full of demons.	Hell [accept equivalents]



### Round 1 3rd Section Toss-up Questions

#### **Question #15: Miscellaneous – Consumer Education**

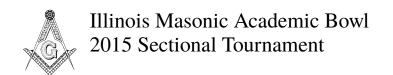
10 points

The state of Washington used to have an example of			
this concept called an opportunity to dance. In			
Kentucky, this concept is applied to candy without flour			
but not candy with flour. The Whiskey Rebellion was			
sparked by an attempt to enforce one of these policies			
on producers. When applied at multiple levels, it is			
referred to as "value-added." A number of states have			
passed "Amazon tax" laws to force many online			
businesses to collect and remit it. Name this tax that is			
most often paid by consumers when purchasing goods.			

sales tax [accept excise tax
until "value-added", prompt
on tax

#### **Question #16: Science – Earth Science**

<u>desert</u> s



### Round 1 3rd Section Toss-up Questions

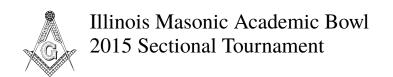
#### **Question #17: Literature – British Literature**

10 points

The prelude to this work describes an orphan who	Beowulf
destroyed his enemies and their drinking halls to	
become a king, Scyld Scefing [skild SKEH-feeng].	
Battle-sweat as a description of blood was among the	
many kennings in this poem. Translated into English by	
Frances Grummere, one character has an arm ripped off	
during an attack on Heorot [HAY-oh-rote], a mead-hall.	
The title character of this work helps	
Hrothgar [HROTH-gahr], the king of the Danes. Name	
this Old English epic poem detailing the murder of	
Grendel by the title character.	

## **Question #18: Social Studies – U.S. History**

This country hosted the ceremony for the resolution of	Mexico [or United Mexican
the Chamizal [chah-MEE-zahl] dispute. Abraham	States]
Lincoln's Spot Resolutions concerned relations with	
this nation. The Punitive Expedition, led by John	
Pershing, ventured into this country to capture those	
responsible for the attack on the city of Columbus led	
by Pancho Villa. This country gave up a lot of territory	
in the Treaty of Guadalupe	
Hidalgo [gwah-dah-LOO-pay ee-DAHL-goe] after	
losing a war to the United States in 1848. Name this	
country found directly south of the Rio Grande.	



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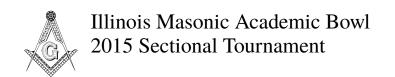
## **Question #19: Science – Biology**

10 points

A common blood coagulant [koe-A-gyoo-lunt]	citric acid [prompt on
combines this acid with dextrose and sodium	<u>citrus</u> ]
citrate [SIH-trate] in water. Its chemical formula is	
C6H8O7 [see six aitch eight oe seven] This acid is	
formed by the combination of	
oxaloacetate [oks-ah-loe-A-suh-tate] and	
acetyl-CoA [uh-SEE-tul koe-ae], and it changes into its	
conjugate when it takes in water and releases	
coenzyme [koe-en-zime] A. Those steps take place in	
the process that creates NADH and ATP. Name this	
acid sometimes used to name the Krebs cycle that is	
found in high concentrations in certain fruits such as	
lemons and oranges.	

#### **Question #20: Literature – World Literature**

This title character is first encountered in the Scythian	<b>Prometheus</b>
wild, and he claimed to take away the "expectancy of	
death" through the planting of "blind hope." He	
refused to reveal to Hermes "by whom 'tis fated that	
Zeus shall fall from power." Kratos [KRAH-tose] calls	
this character "the lover of mankind" as he describes	
the punishment as ordered by Zeus. This Titan tricked	
Zeus into taking the inedible parts of cows. Name this	
title character of an Aeschylus [ES-kuh-lus] play, who	
is bound to a rock for giving mortals fire.	



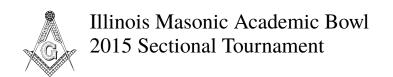
## **Question #21: Fine Arts – Art History**

10 points per part

This	s man designed the Rock and Roll Hall of Fame	
and	the City Hall of Dallas.	
1	Name this architect who designed the glass	I(eoh) M(ing) Pei
	pyramid serving as the entrance to the Louvre.	
2	Pei's firm designed this city's tallest building, the	Boston, Massachusetts
	John Hancock Tower. Another building in this city	
	is Faneuil [FAN-ul] Hall.	
3	Pei designed this Illinois city's University	Chicago, Illinois
	Apartments in its Hyde Park neighborhood, where	
	Frank Lloyd Wright's Robie House can also be	
	found.	

## **Question #22: Fine Arts – Art History**

This	s painter often painted a single subject at different	
times of day, an example of which is his series of		
pain	tings of Rouen [roo-en] Cathedral.	
1	Name this impressionist painter of the <i>Haystacks</i>	Claude <b>Monet</b>
	series.	
2	Monet painted these flowers growing on his estate's	waterlilies [or waterlily,
	pond in Giverny. Some of his paintings show the	prompt on <u>lily</u> or <u>lilies</u> ]
	Japanese bridge over the pond, and his later	
	paintings exhibit reddish hues believed to be	
	caused by his cataracts.	
3	Monet painted one of these events in Le	<u>sunrise</u>
	Havre [HAH-vrah] in a painting entitled	
	Impression, which gave its name to the	
	impressionist movement.	



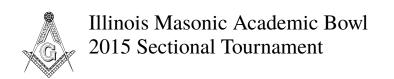
## **Question #23: Science – Chemistry**

10 points per part

The	se depictions typically show pressure on the y-axis	
and	temperature on the x-axis.	
1	Name these pictures that have solid, liquid, and gas	phase diagrams [prompt
	sections that all meet at the triple point.	partial answer]
2	On a phase diagram, the border of the curve	<u>critical</u> point
	between the liquid and gas phases ends at this point.	
3	This is the section of a phase diagram where the	supercritical fluid [prompt
	temperature and pressure are beyond the critical	partial answer]
	point.	

## **Question #24: Science – Chemistry**

This	s term can refer to hydrocarbons that have no	
double bonds.		
1	Give this term that often refers to solutions that	saturated [accept word
	contain as much solute [SAHL-yoot] as they can.	forms]
2	If a solute does not dissolve in a solution, this is the	precipitate [or
	name for the solid that forms, typically at the	<b>precipitation</b> , do not accept
	bottom of the solution.	"precipitant"]
3	Almost all salts with this cation [KAT-eye-on] are	ammonium [or NH4 <sup>+</sup> ]
	soluble even though this cation does not contain	
	any alkali [AL-kuh-lie] metals other than possibly	
	hydrogen. The chloride of this ion combines with	
	silver cyanate [SIE-uh-nate] to make silver chloride	
	and urea.	



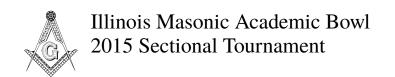
## **Question #25: Social Studies – U.S. History**

10 points per part

foot	berpetrators were almost trapped on a practice ball field before climbing Blanket Hill, which was	
follo	owed by this controversial event.	
1	Name this conflict between student protestors and the state's National Guard during which four students were killed. John Filo took an iconic photograph that featured the dead body of Jeffrey Miller.	Kent State shootings [accept Kent State Massacre or May 4 Massacre]
2	The Kent State shootings took place in this state.	<u>Ohio</u>
3	The protesters who were fired upon were demonstrating against the United States' protracted involvement in this conflict.	Vietnam War [accept answers focused on Cambodia]

#### **Question #26: Social Studies – U.S. History**

Foll	owing the act for which he would be executed, this	
man compared himself to the woman the act widowed		
in a	n attempt to raise funds for his trial.	
1	Name this lunatic [LOO-nah-tik] who firmly	Charles <b>Guiteau</b>
	believed his actions swung the result of the 1880	
	Presidential election, and he thus deserved to be	
	appointed consul to Austria, or later France.	
2	Despite his inflated ego, Guiteau [gee-toe] is best	James A. Garfield
	remembered for shooting this man, who had	
	become president six months earlier.	
3	After assassinating Garfield, Guiteau wrote to this	William Tecumseh Sherman
	Commanding General of the Army, asking him to	
	take over the jail. During the Civil War, this	
	general led the March to the Sea.	



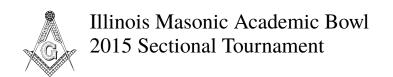
## **Question #27: Mathematics – Geometry**

10 points per part

Con	sider a diagram on which Point C is between	
Poir	nts A and F, and Point B is not on Line AF.	
1	What adjective describes Angle BCF with respect	external angle
	to Triangle ABC?	
2	If Angle A measures fifty-five degrees and Angle B	120 degrees
	measures sixty-five degrees, what is the measure of	
	Angle BCF in degrees?	
3	What is the measure of Angle ACB?	<u>60</u> degrees

## **Question #28: Mathematics – Geometry**

	re are two triangles, ABC and DEF. Angle A is gruent to Angle D, Angle B is congruent to Angle	
	nd Angle C is congruent to Angle F.	
1	What is the relationship between the two triangles?	similar [accept word forms]
2	If Segment AB is length eight, Segment BC is length twelve, and Segment DE is length ten, find the length of Segment EF. Ignore units.	<u>15</u> units
3	Assuming all the angle and side relationships described so far hold, if the area of Triangle ABC is sixteen, then what is the area of Triangle DEF? Ignore units.	25 square units



## Round 1 5th Section Toss-up Questions

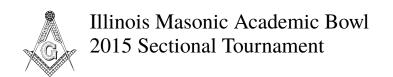
## **Question #29: Science – Physics**

10 points

The law adding the electric and magnetic values for this	net <b>force</b>
quantity is named for Lorentz. In a conservative field,	
this quantity is the opposite of the gradient of potential	
energy. This quantity divided by area gives pressure.	
The integral of this quantity with respect to time equals	
impulse. Non-inertial reference frames cause	
sensations known as the fictitious types of this quantity.	
This quantity equals the time derivative of momentum,	
which means that for constant mass this quantity equals	
mass times acceleration. Name this external influence,	
one example of which is gravity.	

#### **Question #30: Literature – U.S. Literature**

In this novel, a missionary undergoes facial scarring in	The <b>Color Purple</b>
solidarity with his native wife, who was subjected to	
female genital mutilation. In this novel, a sentence of	
twelve years' forced labor was handed down for	
insubordination; the defendant in that case, Sofia, had	
knocked down the mayor after being slapped. Much of	
the action in this novel is described in letters by the	
protagonist to God and her sister. Shug Avery helps the	
protagonist discover that letters from Nettie are not	
being delivered. Name this novel about Celie [SEE-lee]	
written by Alice Walker.	



#### Round 1 5th Section Toss-up Questions

#### **Question #31: Mathematics – Math Concepts**

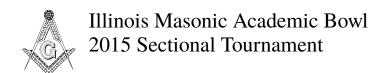
10 points

This binary operation must be defined for two vectors in a vector space. A term in a Lucas sequence is found by performing this operation on the two previous terms. If two sets are disjoint, then applying this operation to their cardinalities gives the cardinality of their union. The principle of this operation determines how many ways there can be a single event. This operation is applied to vectors using the parallelogram law. The identity for this operation on numbers is zero. Name this operation equivalent to summation.

addition (accept word forms,
accept plus and its word
forms, accept sum and their
word forms until the end)

#### **Question #32: Social Studies – World History**

Rebel leaders supporting the independence of this	<b>Scotland</b>
kingdom wrote the infamous Lubeck letter. Between	
the reigns of Donald II and Alexander III in 1249, this	
kingdom was referred to as Alba. Andrew Moray led	
its winning forces at the battle of Stirling Bridge. This	
kingdom was victorious at the Battle of Bannockburn	
under the leadership of Robert the Bruce. King Edward	
the First of England ordered the death of its hero	
William Wallace. One of its kings was Macbeth. Name	
this country that in 2014 voted to remain part of the	
United Kingdom.	



# Round 1 Extra Section Toss-up Questions

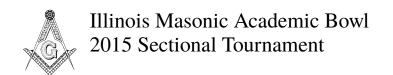
## **Extra Question #1: Fine Arts – Art History**

10 points

This city's Basilica Cistern [SIS-tern] is a catacomb	<b>Istanbul</b> , Turkey
that has two columns built atop carved heads of	
Medusa. Mimar Sinan designed the largest religious	
building here, which is located on this city's Third Hill.	
This city is home to the Sultan Ahmed Mosque, which	
is colored blue, and Anthemius of	
Tralles [an-THEM-ee-us of TRAHL-lus] and Isidore of	
Miletus [MY-leh-tus] designed a church here that has	
mosaics depicting the Comnenus family. Name this city	
where the Suleyman Mosque and Hagia [HAH-jee-uh]	
Sophia are found.	

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

An uprising in this territory was the subject of the	<u>Hawaii</u>
differing Morgan and Blount Reports. The Bayonet	
Constitution was signed in what would become this	
state, where Father Damien established a colony for	
lepers. Prior to annexation, it was ruled from the	
Iolani [ee-oe-lah-nee] Palace by Queen	
Liliuokalani [lih-lee-yoe-kah-lah-nee]. Name this state	
found in the middle of the Pacific Ocean.	



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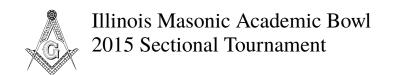
## Extra Question #3: Science – Astronomy

10 points

A 2014 study by NASA and ESA found that the	Opik- <b>Oort Cloud</b>
nitrogen in Titan's atmosphere matched the nitrogen in	
this location, supporting that this is where Titan was	
created. The inner part of this location is shaped like a	
disc and called Hills Cloud. This shell is located	
thousands of astronomical units from our Sun, beyond	
the scattered disc and the Kuiper belt. Name this source	
of long-period comets originally hypothesized by Ernst	
Opik and now named for a Dutch astronomer.	

#### **Extra Question #4: Literature – British Literature**

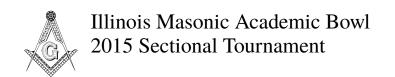
While swimming, this character offended a mouse by	Alice [accept Alice's
asking "where is my cat" in French. After consuming a	Adventures in Wonderland
mushroom, she is mistaken for a snake by a pigeon	
seeking to protect her eggs. Transported by a gryphon	
to see the Mock Turtle, her size changes after	
consuming items labelled "DRINK ME" and "EAT	
ME." Name this child who ventures into Wonderland in	
tales written by Lewis Carroll.	



# Round 1 Extra Section Toss-up Questions

## **Extra Question #5: Mathematics – Math Concepts**

This value is the order of the Klein group, which is the	<u>four</u>
smallest non-cyclic group. This is the least positive	
integer that is not a Fibonacci [fih-boe-NAH-chee]	
number. A simplex in this many dimensions has five	
vertices, and this value is also the number of	
dimensions of a tesseract. Numbers divisible by this	
value are called doubly even, and this is the middle	
number in the smallest Pythagorean Triple. This value	
is the least positive even perfect square. Identify this	
value equal to the number of faces of a tetrahedron and	
that is also the number of sides of a rectangle.	



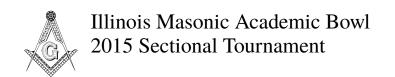
## Extra Question #6: Literature – British Literature

10 points per part

The narrator of this poem refers to the title phrase as		
"the old lie," and indicates that one should not tell it to		
"children ardent for some desperate glory."		
1	Name this war poem that describes the dropping of	"Dulce et Decorum est"
	Five-Nines, and the immediate impact on a group	
	of soldiers "knock-kneed, coughing like hags."	
2	This poet of "Dulce et Decorum Est" described the	Wilfred <b>Owen</b>
	monstrous anger of the guns replacing	
	passing-bells for those who die as cattle in	
	"Anthem for Doomed Youth."	
3	Wilfred Owen was among the "War Poets" who	World War I [accept Great
	fought in this major conflict, along with Siegfried	<u>War</u> ]
	Sassoon and Rupert Brooke. Ernest Hemingway	
	and E.E. Cummings both volunteered as	
	ambulance drivers during this conflict.	

## Extra Question #7: Literature – British Literature

The	narrator of this poem proclaims "beauty is truth,	
truth beauty."		
1	Name this poem dedicated to a piece of pottery that	"Ode on a Grecian Urn"
	is called a "Sylvan historian" and a "foster child of	
	silence and slow time."	
2	This author of "Ode on a Grecian Urn" describes a	John <u>Keats</u>
	knight-at-arms "alone and palely loitering" in "La	
	Belle Dame Sans Merci."	
3	Keats wrote two long works about this titan who	Hyperion
	fathered Helios.	



## Extra Question #8: Mathematics - Algebra

10 points per part

This	s concept is often represented by a	
lemniscate [LEM-nuh-scate].		
1	Name this concept often confused for a number.	infinity [or infinite]
	This concept represents the ability of some	
	quantities to grow without bound.	
2	This mathematician studied different types of	Georg Cantor
	infinities and developed the idea of transfinite	
	numbers.	
3	The set of all numbers divisible by both 6 and 8 is	24
	an infinite set equivalent to the set of all numbers	
	divisible by what value?	

## Extra Question #9: Mathematics - Algebra

There are several unsolved problems in mathematics.		
1	One of the Millennium Prize Problems asks	Bernhard <b>Riemann</b> [or
	whether all of the nontrivial zeros of this	Riemann conjecture or
	mathematicianâ s zeta function have a real part	<b>Riemann</b> zeta function]
	equal to one-half.	
2	This mathematician conjectured to Euler that every	Christian <b>Goldbach</b> [or
	even integer greater than two can be expressed as	Goldbach â 2s conjecture]
	the sum of two primes. Over two hundred years	
	later, we still do not know if he is correct.	
3	This is the only pair of prime numbers that adds up	5 and 7 [either order, accept
	to twelve.	answers such as $5 + 7$ ]
		1