



### Question #1: Social Studies

10 points

Though Tom and Mark Udall [YOO-dahl] represented New Mexico and Colorado in Congress, their fathers—who are brothers—both represented this state. The “Silent Senator” Carl Hayden represented this state for 57 years. In 1960, a U.S. senator from this state wrote the book *The Conscience of a Conservative*; that senator later ran for president, saying “Extremism in the defense of liberty is no vice!”. This state was the home of Barry Goldwater and of the 2008 Republican presidential nominee. Name this state whose current senators are Kyrsten Sinema [“cinema”] and Martha McSally and which was the home of John McCain.

Arizona

### Question #2: Science

10 points

Dyes that are this type of substance work well for wool, silk, and nylon, but they do not work well for cotton. Organic compounds with a carboxyl [kahr-BOK-sil] group are all this type of compound, which is explicit in their names. Rechargeable batteries commonly use lead [led] at the terminals and this type of substance as the electrolyte. These substances make bromo-thymol [BROH-moh-THY-mawl] blue and phenol red both look yellow. According to Brønsted and Lowry, these substances donate hydrogen ions to a solution. These substances have a pH [“P-H”] less than 7. Name these molecules that can be neutralized by bases.

acids [or acidic substances]



**Question #3: Literature**

*10 points*

<p>This character eventually agrees to go to a <b>hovel</b> [HUV-ul] during a storm after saying “I am a man more sinned against than sinning.” When a woman says “Nothing, my lord” to this character, he replies “Nothing can come of nothing. Speak again.” That woman later marries the king of France. This character is praised by the wives of the Duke of Albany and the Duke of Cornwall, who are each given a half of his inheritance after initially being given a third of it. Name this king of Britain in a William Shakespeare tragedy whose daughters are <b>Goneril</b> [GAH-nuh-ril], Regan, and Cordelia.</p>	<p>King <u>Lear</u></p>
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**Question #4: Miscellaneous**

*10 points*

<p>In this sport, attacks from the back can be called “bics” or “pipes”. This sport is not soccer, but it has players called <b>liberos</b> [LI-buh-roes] who are defensive specialists and do not have to follow standard substitution rules. The only defensive statistic in this sport is digs, though blocking is also a statistical category. Clara Baer developed a variant on this sport called Newcomb that allows catching. This sport is usually played by six people on each side when it is indoors, though there are only two people per team in the competitive beach version. Name this sport in which the goal is to hit the ball over the net.</p>	<p><u>volleyball</u></p>
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### Question #5: Science

10 points

This type of incident is very similar to, but more severe than, a transient **ischemic** [is-KEE-mik] attack. About 90% of these medical incidents are silent, meaning that the patient is unaware it happened but has lesions that appear on an MRI. This type of incident is more likely for people who have migraines with auras and women who take estrogen hormone replacement therapy. This type of incident is generally rare in children, though 10% of children with sickle-cell anemia suffer one. This type of incident is often due to problems in the **carotid** [kuh-“ROT”-id] arteries. These incidents can cause facial droop, speech difficulties, and death. Name this type of medical incident caused by poor blood flow to the brain.

**stroke(s)** [or **apoplexy** or **cerebral hemorrhage(s)** or **cerebral vascular accident(s)** or **cerebral infarction(s)**; prompt on partial answers]

### Question #6: Social Studies

10 points

On some economics graphs, producer surplus is the area below the equilibrium price but above the curve representing this quantity. That curve representing this quantity is shifted down by a subsidy. The curve representing this quantity has a positive slope on that graph, which places this quantity on the  $x$ -axis and price on the  $y$ -axis. Cost-push inflation occurs when this quantity decreases. An economic theory based on increasing this quantity focuses on deregulation and lower taxes for the wealthy. This quantity is the amount of a good that can be produced. Name this quantity often compared to demand.

**supply** [accept **supply-side economics**]



**Question #7: Literature**

*10 points per part*

Buddha attained enlightenment while sitting under one of these objects called the <b>Bodhi</b> [BOH-dee].		
<b>1</b>	Name these objects that, following a tradition started in Northeastern Europe, are often brought into homes and decorated during Christmas.	<u>trees</u>
<b>2</b>	This large ash tree is the center of the universe in Norse mythology.	<u>Yggdrasil</u> [IG-druh-sill]
<b>3</b>	In Greek mythology, these nymphs lived in oak trees. Women sometimes pretended to be these nymphs when worshipping <b>Artemis</b> [ART-eh-miss].	<u>dryads</u> ["DRY-ads"]

**Question #8: Literature**

*10 points per part*

Answer the following about problems caused by opening things:		
<b>1</b>	This first woman of Greek mythology opened a box or jar, releasing evil and sickness to the world.	<u>Pandora</u>
<b>2</b>	<b>Aeolus</b> [ee-OH-luss] gave a favorable wind to this person and put the other winds in a bag. This person's crew opened the bag, causing their ship to go back to where it was.	<u>Odysseus</u> or <u>Ulysses</u>
<b>3</b>	The temple of God opens in the Book of Revelation after this many trumpets sound, followed by lightning, an earthquake, and great hail.	<u>seven</u> trumpets



**Question #9: Mathematics**

*10 points per part*

Answer the following about matrix multiplication:		
<b>1</b>	If $A$ and $B$ are matrices, then $A$ times $B$ usually doesn't equal $B$ times $A$ . Therefore, matrix multiplication lacks what property?	<u>commutative</u> property or <u>commutativity</u>
<b>2</b>	Give the name for the matrix that results when a matrix is multiplied by its own inverse.	<u>identity</u> matrix [prompt on <u><math>I</math></u> ]
<b>3</b>	Find the number in the upper left corner when the matrix with top row 3, 1 and bottom row 3, 5 [pause] is multiplied by the matrix with top row 3, 6 and bottom row 1, 9.	<u>10</u>

**Question #10: Mathematics**

*10 points per part*

For positive numbers, but not for negative numbers, this function is equivalent to the identity function.		
<b>1</b>	Name this function that gives the distance along the number line between the input and 0.	<u>absolute value</u> [accept complex <u>modulus</u> ]
<b>2</b>	For complex numbers, one way to find the absolute value, or modulus, is to take the square root of the number times this operation on the number. This operation keeps the real component the same and takes the opposite of the imaginary component.	complex <u>conjugate</u> or complex <u>conjugation</u>
<b>3</b>	Find the absolute value, or modulus, of 2 minus $3i$ .	square <u>root</u> of <u>13</u> [accept <u>radical 13</u> ; do not prompt on "13"]



**Question #11: Social Studies**

10 points per part

This person was born in Trier, Prussia, but he left in 1843 because the newspaper he edited was repeatedly censored.		
<b>1</b>	Name this writer of <i>Das Kapital</i> [dahss kah-pee-TAHL], who worked with Friedrich Engels [“angles”] on <i>The Communist Manifesto</i> .	Karl <u>Marx</u>
<b>2</b>	Marx wrote a detailed criticism of this philosopher’s text <i>Elements of the Philosophy of Right</i> . Marx is credited with applying this philosopher’s dialectic to materialism.	G(eorg) W(ilhelm) F(riedrich) <u>Hegel</u> [HAY-gull]
<b>3</b>	Marx was supportive of the commune that ran this city for a few months during 1871 and which burned down the <u>Tuileries</u> [twee-luh-ree] Palace.	<u>Paris</u> , France [accept <u>Paris</u> Commune]

**Question #12: Social Studies**

10 points per part

In 1084, Robert <u>Guiscard</u> [gwee-kar] attacked this city to free Pope Gregory VII from the Castel Sant’Angelo.		
<b>1</b>	Name this city surrounding Vatican City that has been sacked several times, including in 410 by the Visigoths and in 546 by the Ostrogoths.	<u>Rome</u> , Italy [or <u>Roma</u> , Italia]
<b>2</b>	This group led by <u>Genseric</u> [JEN-suh-rik] sacked Rome in 455. This group’s name is now applied to people who purposely destroy property.	<u>Vandals</u>
<b>3</b>	In the book <i>Ab Urbe Condita</i> [ahb UR-bay kon-DEE-tuh], this historian described a sack of Rome in 387 BCE by the Gauls under Brennus. The description is not believed to be accurate.	<u>Livy</u> [or Titus <u>Livius</u> ]



**Question #13: Science**

*10 points per part*

The largest of these objects in the world is the Lambert, which is 270 miles long and 60 miles wide.		
<b>1</b>	Name these persistent masses of slow-moving ice.	<b>glaciers</b>
<b>2</b>	This ice <b>ablation</b> [uh-BLAY-shun] process occurs when a chunk of ice suddenly breaks off of the edge of a glacier.	ice <b>calving</b> [or <b>calve</b> ]
<b>3</b>	Because this <b>epoch</b> [EP-uk] had repeated glaciations, it is sometimes called the Ice Age. This epoch started the Quaternary Period, immediately preceding the <b>Holocene</b> ["HOLE-oh-seen"] epoch.	<b>Pleistocene</b> [PLY-stoh-seen] epoch

**Question #14: Science**

*10 points per part*

This warming of water temperature is paired with a negative Southern Oscillation Index affecting air pressure.		
<b>1</b>	Name this Pacific Ocean phenomenon that occurs about every four years, leading to above-average rainfall in the southern United States.	El <b>Niño</b>
<b>2</b>	These cyclones move farther east during El Niño, sometimes putting Tahiti at risk.	<b>typhoons</b>
<b>3</b>	Recent El Niños have caused the polyps in these <b>anthozoans</b> [an-thoh-ZOH-unz] to expel their <b>zooxanthellae</b> [zoh-uh-zan-THEL-uh]. Give the common name.	<b>corals</b> [accept <b>coral</b> bleaching]



### Question #15: Fine Arts

10 points

Andrea del Castagno's [ahn-DRAY-uh del kah-STAHN-yoh'z] depiction of this event shows a person sleeping near its center. That work influenced Domenico Ghirlandaio's [doh-MEN-ee-koh geer-lahn-DY-oh'z] three paintings of this event. Tintoretto's [teen-toh-RET-oh'z] depiction of this event is unusual for its inclusion of secondary characters and the angle of its perspective. The most famous painting of this event is a fresco in Milan, and some people have debated whether a central figure is St. John or Mary Magdalene [MAG-duh-lin]. Name this event often depicted as taking place with Jesus in the middle of a long table, such as in Leonardo da Vinci's [VIN-chee'z] portrayal.

the Last Supper [or Il Cenacolo or L'Ultima Cena]

### Question #16: Literature

10 points

Before engaging in a sword fight, this character says "Wait while I choose my rhymes." This person then defeats Vicomte de Valvert [vee-kamt de val-vair] in a duel that takes place shortly after this person forces the cancellation of a performance of Clorise [klaw-reess] because he does not allow Montfleury [mawn-floo-ree] to act. This person gets upset because many people, including Christian, are in love with the same woman as him. Because he is afraid to declare his love, this person helps Christian write love letters to Roxane. Name this character in an Edmond Rostand play who is self-conscious about his very large nose.

Cyrano de Bergerac  
[prompt on Bergerac]





**Question #17: Mathematics**

*10 points*

Applying this function and then adding 1 only gives a perfect square if the input is 4, 5, or 7, according to the best-known solution of Brocard's problem. This function is used in the denominators of coefficients in a Taylor series. If this function is applied to  $n$  and  $n$  minus 1, the ratio of the results is  $n$ . This function is used to give simple definitions of the permutation and combination operations. This function is used to determine the number of ways to line up a given number of different items. Name this function calculated by taking the product of all positive integers less than or equal to the input, and which is represented by an exclamation point.

( $n$ ) **factorial** function

**Question #18: Social Studies**

*10 points*

Like many slave traders, **Tippu [TIP-oo]** Tip also traded this substance. Celluloid was developed as a replacement for this substance. Kenyan president Daniel Arap Moi burned 12 tons of this substance in 1989. During the same year, an international moratorium was established on the trade of this substance. Richard Leakey, the son of Mary and Louis Leakey, organized units that were allowed to shoot people on sight to curtail trade in this substance. This substance used to be popular to make billiard balls and the covering of some piano keys. Name this substance whose trade was banned to save elephants, since this substance comes from elephants' tusks.

**ivory**



**Question #19: Science**

*10 points*

**Canonical** [kuh-NAH-nuh-kul] coordinates most often use components of this quantity and **Cartesian** [kar-TEE-zhun] coordinates. For a photon, this quantity can be calculated as Planck's constant over wavelength, or as energy divided by the speed of light. The net force on an object equals the rate of change of this quantity. This quantity is conserved, which is useful when determining the outcome of both elastic and inelastic collisions. The change of this quantity equals the integral of force with respect to time, which is impulse. Name this quantity equal to mass times velocity.

linear **momentum** [do not accept or prompt on "angular momentum"]

**Question #20: Literature**

*10 points*

This character traveled to Wisconsin to ask a woman to marry him, only to find out she was already engaged to his cousin. This character asked Mr. Philander about three skeletons, the smallest of which was an anthropoid ape. Paul **D'Arnot** [dar-noh] taught this character how to speak French, and this person learned to read English long before learning to speak it. This character killed Kerchak after Kerchak killed his father, and he was raised by Kala in Africa. This character, who was born with the name John Clayton II, Viscount Greystoke, falls in love with Jane Porter. Name this Edgar Rice Burroughs character who was raised in the jungle by apes.

**Tarzan** [accept John **Clayton II** or Viscount **Greystoke** before each is mentioned]



### Question #21: Social Studies

*10 points per part*

The person who holds this position is second in the United States presidential line of succession, after the vice president.		
<b>1</b>	Give this title of the leader of the U.S. House of Representatives.	<b><u>Speaker</u></b> of the U.S. House of Representatives
<b>2</b>	This constitutional amendment states that the Speaker of the House and president pro tempore of the Senate should be notified when the President is unable to continue in his or her position.	<b><u>25th Amendment</u></b>
<b>3</b>	This informal name is given to the group of Congresspeople, including the Speaker, who receive intelligence briefings from the executive branch.	<b><u>Gang of Eight</u></b>

### Question #22: Social Studies

*10 points per part*

The U.S. federal government defines this type of crime as one punishable by at least a year in prison or by death.		
<b>1</b>	Name this type of crime that is more serious than a misdemeanor.	<b><u>felony</u></b>
<b>2</b>	The practice by some states of felony disenfranchisement is allowed by this constitutional amendment. It also addresses citizenship and the ability of rebels against the U.S. to hold federal office.	<b><u>14th Amendment</u></b>
<b>3</b>	This movement is an attempt to get employers to stop asking potential employees about their criminal history. Many states have done so by adopting fair-chance laws.	<b><u>ban the box</u></b>



**Question #23: Science**

*10 points per part*

Many instruments use this type of wave to create sound, but sound itself is a longitudinal wave.		
<b>1</b>	Name these waves that vibrate perpendicularly to the direction of motion.	<b><u>transverse</u></b> waves
<b>2</b>	This term refers to transverse waves that oscillate in a single plane rather than a variety of transverse directions.	<b><u>polarized</u></b> waves or <b><u>polarization</u></b>
<b>3</b>	This angle, sometimes called the polarization angle, is the angle of incidence that causes all reflected waves to be polarized.	<b><u>Brewster's</u></b> angle

**Question #24: Science**

*10 points per part*

The most massive of these six particles is the top one.		
<b>1</b>	Name these subatomic particles, most of which are up or down.	<b><u>quarks</u></b>
<b>2</b>	This property is 1/3 for all quarks. This “number” is named for a class of <b>hadrons</b> [HAY-drahnz] that includes protons and neutrons.	<b><u>baryon</u></b> number
<b>3</b>	The discovery of quarks that are not up or down was made by solving a so-called “puzzle” named for these two particles. They were thought to be different but are actually both <b>kaons</b> [KAY-ahnz].	<b><u>theta</u></b> and <b><u>tau</u></b> [either order]



**Question #25: Literature**

*10 points per part*

The 1917 Nobel Prize in Literature was shared by Karl Adolph <b>Gjellerup</b> [GEH-luh-roop] and Henrik <b>Pontoppidan</b> [pahn-TAH-pee-dahn].		
<b>1</b>	They were both from this country, and were part of the Modern Breakthrough movement.	(Kingdom of) <b>Denmark</b> or (Kongeriget) <b>Danmark</b>
<b>2</b>	Denmark was also the home of this children’s author who wrote “The Little Mermaid” and “The Ugly Duckling”.	Hans Christian <b>Andersen</b>
<b>3</b>	This is the pen name of the Danish author Karen Blixen, who wrote <i>Out of Africa</i> about her time in Kenya.	Isak <b>Dinesen</b>

**Question #26: Literature**

*10 points per part*

This character’s first name is “Alonso” at first, but it changes.		
<b>1</b>	Name this character who calls himself a knight and attacks windmills.	Don <b>Quixote</b> (de La Mancha)
<b>2</b>	Don Quixote gives this name to Aldonza Lorenzo, saying that she is the perfect woman and is from El <b>Toboso</b> [toh-BOH-soh].	<b>Dulcinea</b> [dool-see-NAY-ah]
<b>3</b>	This is the profession of Nicholas, who helps the curate destroy Don Quixote’s library and bring Don Quixote back home.	<b>barber</b>



**Question #27: Fine Arts**

*10 points per part*

This city is often credited as the birthplace of jazz due to performances by “Buddy” Bolden and Jelly Roll Morton.		
<b>1</b>	Name this city where Preservation Hall is in the French Quarter just off of Bourbon Street.	<u>New Orleans</u> , Louisiana
<b>2</b>	During the 1910s, many New Orleans musicians performed for this trombonist and bandleader before he moved to Los Angeles. Those musicians included Joe “King” Oliver and Louis Armstrong.	Edward “Kid” <u>Ory</u>
<b>3</b>	Many jazz musicians, including Louis Armstrong and Washington D.C.’s Duke Ellington, moved to this city and performed in the Cotton Club during the 1920s and 30s.	<u>New York</u> (City), New York [accept <u>NYC</u> ]

**Question #28: Fine Arts**

*10 points per part*

Stan Getz primarily played the tenor type of this instrument.		
<b>1</b>	Name this single-reed woodwind that is usually made from brass and is popular in jazz music.	(tenor) <u>saxophone(s)</u>
<b>2</b>	This saxophonist formed a quartet with McCoy Tyner, Jimmy Garrison, and Elvin Jones. His albums include <i>A Love Supreme</i> and <i>Giant Steps</i> .	John (William) <u>Coltrane</u>
<b>3</b>	Stan Getz is best known for his recording of this song that is set in Brazil and was written by Brazilians.	“The <u>Girl from Ipanema</u> [ip-uh-NEE-muh]” [or “ <u>Garota de Ipanema</u> ”]



**Question #29: Mathematics**

*10 points*

If a function is even, then each term in its **Fourier [for-yay]** series contains this function. If the direction of a vector is expressed using this function, then the sum of the squares of the values of this function equal 1. In spherical coordinates, this function of the inclination angle gives the ratio between the  $z$ -coordinate and the distance from the origin. Dot products are calculated by multiplying the magnitudes of vectors times a value of this function. This function gives the  $x$ -coordinates of points on the unit circle. Name this function that, for an acute angle in a right triangle, equals the adjacent side length over the hypotenuse length.

cosine function

**Question #30: Social Studies**

*10 points*

While working for this company, **Heard Baumeister [BAO-my-stur]** and George Laurer developed the first Universal Product Code barcodes. Research by this company is also responsible for LASIK eye surgery and scanning tunneling microscopes. This company's German subsidiary **Dehomag [deh-HOH-mag]** helped the Nazis track their populations using punch cards. This company was given its current name by its long-time leader Thomas Watson, who is the namesake of one of its recent supercomputers. Name this computer company that is nicknamed "Big Blue" and which developed the PC first used to run Microsoft Windows.

IBM or International Business Machines



**Question #31: Science**

10 points

Lesions in this organ can cause **Klüver-Bucy** [KLOO-vur BOO-see] syndrome, which leads to inappropriate eating. The build-up of tau proteins in this organ leads to Pick's disease. One part of this organ contains the **dentate gyrus** [DENT-"ate" JY-russ] and is part of the **limbic** [LIM-bik] system. That part of this organ, whose name reflects the fact that it is shaped like a seahorse, is the hippocampus. The **thalamus** [THAL-uh-muss] and hypothalamus are in this organ. Portions of this organ are called the grey matter and white matter. Name this organ that contains the **cerebellum** [sair-uh-BELL-um] and **cerebrum** [suh-REE-brum] and is in the head.

brain

**Question #32: Literature**

10 points

At the end of this novella, 12 voices are shouting in anger because two characters played the ace of spades simultaneously. One of the aces of spades is played by the owner of Foxwood, Mr. Pilkington. The other ace of spades played at the end of this novella is played by a character who falsely claimed both to have come up with the idea of building a windmill and to be a hero of the Battle of the Cowshed. Many critics have compared this novella's Battle of the Cowshed to the Russian October Revolution. In this novella, Napoleon and Snowball lead a revolution and are pigs. Name this novella by George Orwell.

Animal Farm





**Extra Question #1: Mathematics**

10 points

<p>One theory of these entities is called the Gentzen-type based on Gentzen’s development of sequent calculus and his use of the consistency types of these entities. Some of these entities are classified as being “by exhaustion”, including many computer-assisted examples such as the one by Kenneth Appel and Wolfgang Haken on the four color theorem. When these entities use a basis step and an inductive step they are classified as being “by induction”. The abbreviation “Q.E.D.” is sometimes written at the end of these entities. Name these rigorous mathematical arguments that geometry students often write in two columns.</p>	<p>mathematical <u>proofs</u></p>
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**Extra Question #2: Fine Arts**

10 points

<p>A work by this composer features the voice of the Angel of Agony and is based on a poem by Cardinal John Henry Newman. In that work by this composer, an old man—who is the protagonist—ends up in Purgatory. Another song by this composer has a repeated rhythm of a half note, two eighth notes, quarter note, three half notes, two eighth notes, quarter note, dotted half note. Another work by this composer consists of variations dedicated to people he knew, though Augustus Jaeger [YAY-gur] is called Nimrod. Name this English composer of <i>The Dream of Gerontius</i> and <i>Enigma Variations</i> whose <i>Pomp and Circumstance Marches</i> are often played at graduations.</p>	<p>Edward <u>Elgar</u></p>
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### Extra Question #3: Social Studies

10 points

<p>The northern part of this country contains the Ogo Mountains, which are also called the Galgodon Highlands. This country's northwesternmost administrative region—which has attempted to secede—is Awdal and contains the city of <b>Borama</b> [boh-RAH-muh]. That region is next to this country's second-most populous city, <b>Hargeisa</b> [har-GAY-suh]. The northeasternmost part of this country is Puntland, and those regions form the southern shore of the Gulf of Aden. The shape of this country explains why its region is called the "Horn of Africa". Name this country east of Kenya and Ethiopia whose capital is <b>Mogadishu</b> [moh-guh-DEE-shoo].</p>	<p>(Federal Republic of) <b><u>Somalia</u></b></p>
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### Extra Question #4: Science

10 points

<p>This bone's <b>bicipital</b> [bih-SIP-ih-tull] groove separates its greater <b>tubercle</b> [TOO-bur-kull] and lesser tubercle. The end of this bone has a <b>capitulum</b> [kuh-PICH-yoo-lum], which extends from the lateral <b>epicondyle</b> [ep-uh-KAHN-"dial"]. This bone articulates with another bone's glenoid fossa. The pectoralis major muscle flexes and rotates this bone. This bone is stabilized by the rotator cuff, which keeps it in another bone's socket. This bone is not the ulna, but a sensation that seems to come from it is from the ulnar nerve. This bone goes from the scapula to the radius and ulna. Name this bone of the upper arm.</p>	<p><b><u>humerus</u></b></p>
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**Extra Question #5: Literature**

*10 points*

In this novel, a woman takes a letter from under a bust of Beethoven and hands it to the protagonist, who asks whether the man writing the letters knows both women read them. Shortly after that, the protagonist buys bonbons for her sons in Iberville. Those letters, which are shared by Mademoiselle Reisz [reess], tell this novel's protagonist that Robert Lebrun will soon be in town. The protagonist in this novel is married to Léonce [lay-awnss], and they live in New Orleans and vacation on Grand Isle. Name this short novel about Edna Pontellier [pawn-tell-yay] written by Kate Chopin.

*The Awakening*



**Extra Question #6: Literature**

*10 points per part*

This short story describes an event that starts around 10 a.m. so participants can get home for noon dinner.		
<b>1</b>	Name this story in which Tessie Hutchinson gets a slip of paper with a black mark on it.	“The <b><u>Lottery</u></b> ”
<b>2</b>	In “The Lottery”, Mr. Summers runs this type of business. The lottery box is stored in his safe.	<b><u>coal</u></b> company [accept <b><u>coal</u></b> business; do not accept putatively related answers like “mining”]
<b>3</b>	This author wrote “The Lottery”. She also wrote <i>The Haunting of Hill House</i> .	Shirley (Hardie) <b><u>Jackson</u></b>

**Extra Question #7: Literature**

*10 points per part*

This poem states “No more to say, and nothing to weep for but the Beings in the Dream.”		
<b>1</b>	Name this poem that begins “Strange now to think of you, gone without corsets and eyes, while I walk on the sunny pavement of Greenwich Village.”	“ <b><u>Kaddish</u></b> for Naomi Ginsberg (1894–1956)”
<b>2</b>	This poet wrote “Kaddish” shortly after writing “Howl”.	(Irwin) Allen <b><u>Ginsberg</u></b>
<b>3</b>	In the second section of “Howl”, Ginsberg often repeats this name for a character he refers to as the loveless and the heavy judger of men.	<b><u>Moloch</u></b>



**Extra Question #8: Mathematics**

*10 points per part*

All but two of the faces of this type of solid need to be parallelograms and are usually rectangles.		
<b>1</b>	Name this type of solid with two parallel bases that are congruent polygons.	<b>prism(s)</b>
<b>2</b>	Find the volume of a triangular prism if each of its edges is two units long.	<b>2</b> times the square <b>root</b> of <b>3</b> (cubic units) [accept <b>2</b> times <b>radical 3</b> (cubic units); do not prompt on partial answers]
<b>3</b>	Find the total surface area of a rectangular prism if it has edges of length 1 unit, 2 units, and 3 units.	<b>22</b> square units

**Extra Question #9: Mathematics**

*10 points per part*

Propositions 16 and 32 in Euclid's <i>Elements</i> are theorems involving this type of angle.		
<b>1</b>	Name this type of angle between the extension of one side of a polygon outside of the polygon [pause] and the side adjacent to the extended side.	<b>external</b> angle(s) or <b>exterior</b> angle(s)
<b>2</b>	Find the measure, in degrees, of an external angle in a quadrilateral if the three other external angles each measure 100 degrees.	<b>60</b> degrees
<b>3</b>	Find the measure, in degrees, of each external angle of a regular <b>dodecagon</b> [doe-DEH-kuh-gon].	<b>30</b> degrees