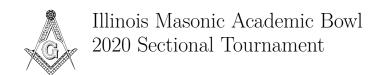## Question #1: Literature

10 points

A poem by this writer begins "Low-anchored cloud, Newfoundland [NOO-fund-lund] air." Another poem by this writer ends "But he goes unappeased who is on kindness bent." Those poems, "Mist" and "Friendship", are in this writer's *Poems of Nature.* In a book, this writer imagines a conversation with a poet who is believed to be William Ellery Channing. That conversation occurs in "Brute Neighbors", a section of this writer's book that also describes a war between red ants and black ants. In that book, this person states "I went to the woods because I wished to live deliberately." This author named that book after the pond he lived near. Name this transcendentalist who wrote *Walden.*	Henry David **Thoreau**

Question #2: Fine Arts

10 points

One of the most famous jazz performers on this instrument bought his instrument the day after hearing Charlie Christian perform on it. That performer, whose songs include "Bumpin' on Sunset" and "Four on Six", was Wes Montgomery. He famously played this instrument with the side of his thumb. Another performer on this instrument, who composed the songs "Nuages" [noo-ahj] and "Minor Swing", was Django [JAYN-goh] Reinhardt. Jazz performers often use the archtop type of this instrument, such as the one made by Gibson, and they typically use electric instruments. Name this fretted instrument that usually has six strings and may be played with a pick or strummed.	**guitar**s

Question #3: Mathematics

10 points

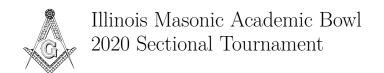|	
The Cauchy-Riemann [koh-shee REE-mahn] equations are used to determine whether functions using these numbers are differentiable. The fundamental theorem of algebra states that every non-constant polynomial whose coefficients are this type of number has at least one root that is this type of number. These numbers are often represented on an Argand [ar-gawn] diagram, which is two-dimensional and uses the x-axis to represent these numbers' real part. These numbers can be raised to powers using de Moivre's [mawv'z] formula, which uses their polar or "cis" [siss] form. Name these numbers that have imaginary parts and can be expressed in the form "a plus bi".	**complex** numbers [prompt on **C**]

Question #4: Social Studies

10 points

This person's signature was four lines, with the top line being an 'S' between two dots. This person and his brothers Bartholomew and Diego were investigated by Francisco de Bobadilla [boh-bah-DEE-yah], who sent them home in chains. This person and his followers established the settlement of La Navidad [nah-vee-DAHD], which was destroyed within one year. This person's first of four voyages went to what is now the Bahamas, Cuba, and Hispaniola, probably making him the first European to reach those places. He named one of his settlements "La Isabela" after the queen who supported him. Name this person who sailed in 1492 using the ships the *Pinta*, *Niña [NEEN-yah]*, and *Santa María*.	Christopher **Columbus** [or Cristoforo **Colombo** or Cristóbal **Colón**]

Question #5: Science

10 points

One of the elements in this group of the periodic table is commonly used in diphenyl ethers ["die"-FEEN-ul EE-thurz] as a fire retardant. Another element in this group was first produced in 2010 and is called Tennessine [TEN-uh-seen]. Two elements in this group combine with carbon to create compounds useful as aerosols and refrigerants, but those compounds harmed the ozone layer. Elements in this group are extremely good at attracting electrons, which means that they have the highest electro·negativities. Name these elements such as bromine [BROH-meen] and fluorine that are just to the left of the noble gases on the periodic table.	**halogen**s [accept Group **17**]

Question #6: Literature

10 points

Odin punished Thiazi [THEE-uh-see] by taking these body parts from him and placing them in the sky. Odin sacrificed this body part to Mimir's [MEE-mir'z] well to gain wisdom. The *wadjet* is a symbol depicting this body part of Horus, which he offered to Osiris [oh-"SIGH"-rus] after it was removed by Set. In addition to sharing one tooth, the three sisters called the Graeae [GREE-ee] shared one of these body parts. Shiva had three of these body parts, including one in the middle of his forehead. Name this body part of which the Cyclops were often depicted with only one.	**eye**s

Question #7: Science

10 points per part

	The gestational [jess-TAY-shun-ul] form of this disease can cause newborn babies to be larger than usual.	
1	Name this class of diseases characterized by high blood sugar levels.	**diabetes** mellitus
2	Diabetes is often caused by damage to these cells in the pancreas that synthesize insulin.	**beta** cells
3	Beta cells also release amylin [AM-uh-lin] and this peptide that can be used to bind insulin. Levels of this peptide ["PEP-tide"] can differentiate between types of diabetes.	**C**-peptide [or **connecting** peptide]

Question #8: Science

10 points per part

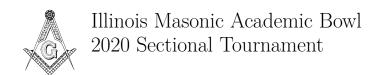|	Alcoholism commonly damages this organ.	
1	Name this organ where cirrhosis [suh-ROH-siss] can occur, meaning that healthy tissue is replaced by scar tissue.	**liver**
2	This disease is an inflammation of the liver. Type B is usually sexually transmitted.	**hepatitis** [hep-uh-"TIE"-tiss]
3	Liver disease can be a sign of this genetic disorder that leads to copper poisoning.	**Wilson**'s disease [or **hepatolenticular degeneration** or progressive **lenticular degeneration**]

Question #9: Social Studies

10 points per part

	During this battle, the Union defended itself at Cemetery Ridge.	
1	Name this deadly July 1863 battle in Pennsylvania. A few months after this battle, President Lincoln dedicated a cemetery at its site by giving a speech that began "Four score and seven years ago."	Battle of **Gettysburg**
2	On the last day of the battle, the Confederates made a charge at Cemetery Ridge that is named for this major general.	George (Edward) **Pickett** [accept **Pickett**'s Charge]
3	This person resigned as Commander of the Army of the Potomac three days before Gettysburg and was replaced by George Meade. He was blamed for the Union loss at Chancellorsville.	Joseph **Hooker**

Question #10: Social Studies

10 points per part

	Election to this office was described by article 1, section 3 of the Constitution, which was changed by the 17th Amendment.	
1	Name this federal job that has a six-year term.	U.S. **senator**(s) [accept the U.S. **Senate**]
2	This party's Omaha Platform advocated direct election of U.S. senators. This party peaked during the 1890s.	**Populist** Party or the **Populist**s [or the **People's** Party]
3	The Populist Party supported this politician, who called for the direct election of Senators and was the Democratic Presidential Candidate in 1896, 1900, and 1908.	William Jennings **Bryan**

Question #11: Mathematics

10 points per part

	If you measure angles in this unit, then the limit as x approaches 0 of sine x over x [pause] equals 1.	
1	Name this unit for angles that is based on arcs of the unit circle.	**radian**s
2	Convert 100 degrees to radians.	**5 pi/9** radians or **5/9 pi** radians
3	Find the measure of a circle's central angle in radians if the radius of the circle is 10 units and the angle subtends an arc of length 6 units.	0.**6** or **3/5** radians [do not accept answers that mention pi]

Question #12: Mathematics

10 points per part

	This process is sometimes equivalent to the distributive property in reverse.	
1	Name this process that changes a polynomial into a product of simpler polynomials.	**factor**ing or **factor**ization [accept **factor**izing]
2	One way to factor is to find two numbers with a given sum and product. Find two numbers whose sum is 20 and whose product is 91.	**7** and **13** [either order]
3	Numbers are often broken down into prime factors. Find the power of 2 in the prime factorization of 144.	**4** [accept 2 to the **4**th power]

Question #13: Literature

10 points per part

In George Bernard Shaw's play *Man and Superman*, John Tanner dreams about this character in Hell.	
1 Name this womanizer who is the subject of many works of fiction by many writers, including Thomas Shadwell's play *The Libertine* [LIB-ur-teen].	Don **Juan** [wahn]
2 In his poem *Don Juan*, this English poet said the title character was "sent to the devil somewhat 'ere his time". This poet also wrote "She Walks in Beauty".	(George Gordon Byron), Lord **Byron**(, 6th Baron Byron)
3 In the initial legend and in Lord Byron's poem, Don Juan is from this city.	**Seville**, Andalusia, Spain [or **Sevilla**]

Question #14: Literature

10 points per part

This poem refers to "pebbles which the waves draw back, and fling" and which "begin, and cease, and then again begin."	
1 Name this poem that ends by stating we are "where ignorant armies clash by night".	"**Dover Beach**"
2 This 19th-century English poet wrote "Dover Beach".	Matthew **Arnold**
3 What adjective is used before the word "plain" in the third-to-last line of "Dover Beach"? Thomas Hardy used this adjective to describe a thrush in the title of one of his poems.	**darkling**

Question #15: Science

10 points

This planet's trojans include Clete [KLEE-tuh] and Otrera [oh-TRAIR-uh]; this planet and Jupiter are the only ones in our solar system with a lot of trojans. This planet has a high layer of methane clouds that cast shadows on a lower layer of ammonia and hydrogen sulfide clouds. This planet has temporary storms that are about the size of Earth, one of which was the Great Dark Spot. This planet's largest moon, which has a retrograde orbit, is Triton. This planet is slightly smaller than Uranus. Name this planet that, since the demotion of Pluto, has been the farthest known planet in our solar system.	<u>**Neptune**</u>

Question #16: Social Studies

10 points

During this war, George Monro was promised that his troops would be able to travel to Fort Edward, but some of his troops were slaughtered. That event happened after this war's Siege of Fort William Henry, which was a victory for Louis-Joseph [loo-ee zhoh-seff] de Montcalm. Two years later during this war, Montcalm was killed while losing in battle to James Wolfe, who also died in the Battle of the Plains of Abraham. At this war's Battle of Fort Necessity, George Washington surrendered. Name this 1754-to-1763 war named for the two groups that the British colonies in America fought against.	**French and Indian** War [prompt on **Seven Year**s' War]

Question #17: Miscellaneous

10 points

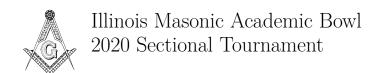| A company that sells this product can set its own UCR standard, which stands for "usual, customary, and reasonable". This product is sometimes classified as point-of-service or fee-for-service. Customers who purchase this product often supplement it with a flexible spending account. This type of product can be based on a preferred provider organization, or PPO. People who purchase this product have a maximum out-of-pocket cost, which is in addition to the premiums they pay. The out-of-pocket costs paid by customers are called a deductible. Name this product that is supposed to cover medical costs.	**health insurance** (plans) or (major) **medical insurance** (plans) [before "medical", prompt on **insurance** (plans); accept just **insurance** (plans) after "medical"]

Question #18: Literature

10 points

At the beginning of the third play in a trilogy by this writer, a woman tells her sister that she wants to bury their brother's dead body. This writer then depicts Ismene ["is-many"] refusing to help bury Polyneices [pah-lee-"NICE"-eez] because of a decree by the king. In the first play in that trilogy, which takes place while that king's brother-in-law is on the throne, this writer has the words "You yourself are the criminal you seek" spoken by the blind prophet Tiresias ["tie"-REE-see-uss]. This writer ended that play with the king gouging out his own eyes. In that play, this writer described the death of Laius ["LIE"-uss] and the events leading Jocasta [yoh-KAHSS-tuh] to unwittingly marry her son. Name this playwright of *Antigone* [an-TIG-uh-nee] and *Oedipus Rex*.	**Sophocles**

Question #19: Science

10 points

When the cells around these things are dumbbell-shaped, these things are called "gramineous" [gruh-MIN-ee-uss]. Other surroundings can cause these objects to be classified as anomocytic [ay-noh-moh-SIT-ik] or anisocytic [an-"EYE"-soh-sit-ik]. In addition to their immediate surroundings, these things are separated by pavement cells, subsidiary cells, and trichomes [TRY-kohmz]. The two cells around each of these things fill with water when conditions are not hot or dry, making these things open; those special parenchyma [pair-en-KY-muh] cells around these things are guard cells. These things also get larger when there is less carbon dioxide than normal. Name these microscopic openings on the surfaces of leaves.	**stoma**ta [accept **stoma**s or **stomate**s; prompt on **hole**s or **pore**s or **leaf**s or **guard cell**s]

Question #20: Social Studies

10 points

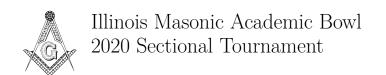|	
During this book of the Bible, a person claims God told him "I will give this land to your descendants as their possession forever." Also in this book of the Bible, a person states he had a dream in which "the sun, the moon, and eleven stars were bowing down to me." Those people, who die at the end of this book, are Jacob and Joseph. Earlier in this book, God saves Lot after some pleading by Lot's uncle, Abraham. Even earlier in this book of the Bible, Cain kills Abel. Name this book in which the fruit of the tree of knowledge of good and evil is eaten by Adam and Eve in the Garden of Eden.	**Genesis** [or **Bereishit**]

Question #21: Fine Arts

10 points per part

	Identify these artists who placed dogs in their paintings:	
1	This artist put a pet dog near the pet monkey in his pointillist masterpiece *A Sunday Afternoon on the Island of La Grande Jatte* [zhaht].	Georges(-Pierre) **Seurat** [zhorzh soo-rah]
2	This artist showed a woman playing with a dog who is on the table in *Luncheon of the Boating Party.*	Pierre-Auguste **Renoir** [ren-war]
3	There are several dogs in the lower left corner of this 16th-century artist's *Hunters in the Snow*, which is also known as *The Return of the Hunters.*	Pieter **Bruegel** [BROO-gull] the Elder

Question #22: Fine Arts

10 points per part

	This term was originally used for works in Pompeii and comes from the Italian word for "scribble" or "scratch".	
1	Give this term for artwork made without permission, often on a wall.	**graffiti** [or s**graffito**]
2	This British graffiti artist—who is known by a pseudonym—created *Slave Labor*, which depicts a child putting small British flags together, and *The Mild Mild West*, which shows a bear and riot police.	**Banksy**
3	This artist joined with Al Diaz to popularize the SAMO ["SAME-oh"] graffiti tag during the 1970s. His later acrylic works have nicknames such as *Yellow Tar and Feathers* and *Black King Catch Scorpio.*	Jean-Michel **Basquiat** [zhahn mee-shel bahss-kee-ah]

Question #23: Science

10 points per part

	Enriching this element means increasing its 235 isotope.	
1	Name this element used in Little Boy, the first nuclear weapon used in war. Plutonium was used in Fat Man.	**uranium** [accept **U**]
2	The enriching of uranium takes place using diffusion and one of these objects that spins, causing a separation based on density.	(gas) **centrifuge**s [**SEN-trih-fyooj**-iz]
3	The mineral uraninite [yoo-RAN-uh-"night"], in which uranium was first discovered, used to have this name. Marie Curie isolated radium from this material.	**pitchblende**

Question #24: Science

10 points per part

	For water, this value is 273.16 kelvins and 611.2 pascals.	
1	Give this term for the combination of temperature and pressure at which a compound can exist as a solid, liquid, and gas in equilibrium.	**triple point**
2	On a phase diagram, the curve below and to the left of the triple point is named for this process, in which a substance changes from a solid to a gas.	**sublimation** (curve) [accept **sublimate** or **sublimating**]
3	This point on a phase diagram borders two liquid phases and a gas phase.	**lambda** point

Question #25: Social Studies

10 points per part

	This type of tax can be called a customs duty.	
1	Give this term for a tax on imports or exports.	**tariff**(s)
2	This name is given to policies that use tariffs to shield producers from foreign competition.	**protectionism** or **protection**ist
3	This Latin phrase is used to describe tariffs whose amount is based on the value of the goods, similar to a value-added tax.	**ad valorem**

Question #26: Social Studies

10 points per part

	Warren Buffett said "My wealth has come from a combination of living in America, some lucky genes, and" the compound type of this payment.	
1	Give this term for a payment made from a borrower to a lender.	**interest**
2	This rate is the interest rate that banks charge to lenders who have the best credit ratings.	**prime** lending rate
3	The prime rate depends on this interest rate, which is what banks charge each other, usually on an overnight basis.	**fed**eral **funds** rate

Question #27: Literature

10 points per part

	The husband in this story says "Nothing like a haircut could make me love you any less. But if you'll open that, you may know what I felt when I came in."	
1	Name this O. Henry story in which Della sells her hair to buy a Christmas gift for her husband.	"The **Gift of the Magi**"
2	Della sells her hair to buy this object for her husband Jim.	a gold watch **chain** [do not accept or prompt on "watch"]
3	In his other story "The Caballero's [kah-bay-YAIR-oh'z] Way", O. Henry created this character who loved to kill and was loved by Tonia Perez.	the **Cisco Kid** [or **Goodall**]

Question #28: Literature

10 points per part

	The characters in this novel have trouble handling the memory of their time at Sweet Home and what happened during their escape from it.	
1	Name this novel set at 124 Bluestone Road in Cincinnati.	***Beloved***
2	This African-American woman wrote *Beloved* as well as *The Bluest Eye* and *Tar Baby*. She died in 2019.	Toni **Morrison** [or Chloe Ann **Wofford**]
3	At one point during the novel, Sethe [SETH-uh], Beloved, and Denver laugh until they cough after Denver falls down while doing this activity.	ice **skating** [or ice **skate**; accept **glide** or **gliding**]

Question #29: Social Studies

10 points

Meetings that occurred in this city's gardens of the British Embassy in 1906 led to its country having a new constitution. This city was used as a capital by the founder of the Qajar [kah-JAR] dynasty starting in 1786. In 1953, the CIA—with British support—organized riots in this city as part of Operation Ajax to overthrow the prime minister, who had nationalized the oil industry. In 1979, a group of students took over the American embassy in this city, and for over a year they held over 50 American hostages. Name this city that, during the 1980s, was the home of Ayatollah Ruhollah Khomeini [roo-HOE-luh koe-MAY-nee] and which is the capital of Iran.	**Tehran**, Iran

Question #30: Science

10 points

This person wrote about a spinning bucket of water to describe his thoughts on absolute motion. This person proved that a spherically symmetric body can be treated as though all its mass is at its center, except mass farther away than the object it is attracting. The fact that the rate of change of temperature is proportional to the difference between an object's temperature and room temperature is this person's law of cooling. The fact that every force is paired up with an equal and opposite force is this person's third law of motion. Identify this scientist who developed the law of universal gravitation and who is the namesake of the S.I. unit of force.	Isaac **Newton**

Question #31: Literature

10 points

This character asks "Do you think, because I am poor, obscure, plain, and little, I am soulless and heartless?". When a marriage proposal is made to this character, she says "You play a farce, which I merely laugh at" because the man who proposes to her had said that he will marry Blanche. After that engagement fails, this character rejects a marriage proposal from St. John [SIN-jin] Rivers. The first man to propose to this character was still married to Bertha Mason, who lived in his attic. Name this orphan who eventually marries Mr. Rochester and is the title character of a novel by Charlotte Brontë [brahn-tay].	**Jane Eyre** [accept either]

Question #32: Mathematics

10 points

One method to calculate this property is called expansion by minors and uses cofactors. A common shortcut for evaluating a triple product is to make the calculation equivalent to calculating this property. The value of this quantity is 0 when it comes from a structure that is not invertible. This quantity is negative when transformations of points or axes involve a reflection. Ratios of these quantities are used in Cramer's rule to find the solution to a system of equations. Name this quantity found from a square matrix that, when the matrix measures 2-by-2, can be calculated using the formula "$a\,d$ minus $b\,c$".	**determinant** (of a matrix)

Extra Question #1: Literature

10 points

The main character in this book states, "You delight in laying down laws, yet you delight more in breaking them." This book gives that response to a lawyer who asks "But what of our laws, master?". The main character of this book is told to speak to us of love, and his answer includes "For love is sufficient unto love". This book begins with "The Coming of the Ship" and calls its title character "the chosen and the beloved". That title character is Almustafa [ahl-moo-STAH-fuh]. Though this book was written in English in the United States, its author was born in the Ottoman Empire in what is now Lebanon, and he often wrote in Arabic. Name this book by Kahlil Gibran [kuh-LEEL juh-BRAHN].	*The **Prophet***

Extra Question #2: Mathematics

10 points

For an osculating [AHSS-"cue"-lay-ting] circle, this property is the reciprocal of the curvature. When using the method of cylindrical shells, the integral is taken with respect to this quantity. The product of the side lengths of a triangle divided by 4 times the area [pause] gives this property of the triangle's circum·circle. The area of a sector equals 1/2 times this quantity squared times the central angle. 4/3 pi is multiplied by this quantity cubed to calculate the volume of a sphere. Name this quantity which is multiplied by 2 pi to find the circumference of a circle.	**radius** [prompt on **r**]

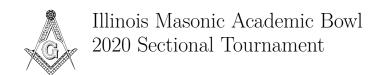## Extra Question #3: Social Studies

10 points

This person started the Manhattan Company, purportedly to improve drinking water, though it became a major bank that is the earliest predecessor firm of J. P. Morgan Chase. This person had controversial negotiations with the British Minister to the United States, Anthony Merry, and teamed up with General James Wilkinson. Wilkinson, however, contacted President Thomas Jefferson, leading to this person being arrested for treason. The Twelfth Amendment was passed after it was difficult to break a tie between this person and Thomas Jefferson. This person was Jefferson's first vice president. Name this person who, in an 1804 duel, killed Alexander Hamilton.	Aaron **Burr**

Extra Question #4: Science

10 points

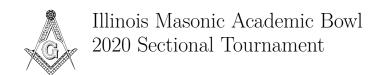| At the World's Columbian Exposition in 1893, this person promoted interest in induction motors via a demonstration using copper in the shape of an egg that stood on its end in a rotating magnetic field. Another device developed by and named for this person can be used to light a fluorescent light bulb that is not plugged in. That device is often used in demonstrations because its discharge looks like lightning. The S.I. unit named after this person is a weber per square meter and is used to measure the strength of a magnetic field. Identify this Serbian-American inventor of a namesake "coil", who worked with Westinghouse Electric to popularize alternating current.	Nikola **Tesla**

Extra Question #5: Fine Arts

10 points

One composer from this country wrote a song for 48 string instruments that has very little traditional playing and was used in the movies *The Exorcist* and *The Shining.* Though this country is not Japan, that composer wrote *Threnody to the Victims of Hiroshima* in addition to *Polymorphia.* A pianist from this country wrote the opera *Manru* years before becoming its prime minister in 1919. This country is the origin of mazurkas and polonaises. A composer who grew up in this country wrote the *Fantaisie-Impromptu* and *Minute Waltz.* Name this country that was the birthplace of Krzysztof Penderecki [SHIS-tawff pen-duh-RETZ-kee], Ignacy Paderewski [ig-NAHT-sih pah-dur-EV-skee], and Frédéric Chopin ["show-pan"].	(Republic of) **Poland** [or (Rzeczpospolita) **Polska**]

Extra Question #6: Science

10 points per part

	This artery ascends as it leaves the left ventricle of the heart.	
1	Name this largest artery in the human body.	<u>**aorta**</u>
2	The aorta goes through an opening in this muscle to get from the thoracic [thor-ASS-ik] cavity to the abdominal cavity.	<u>**diaphragm**</u>
3	The aorta then splits to form these arteries, one on each side, that go towards the pelvis and legs. Give a single answer.	(common) <u>**iliac**</u> arteries

Extra Question #7: Science

10 points per part

	Cells were discovered by looking at this substance.	
1	Name this substance that is taken from the outer bark of a type of oak tree and is often used to make stoppers for bottles. Give a one-word answer.	<u>**cork**</u>
2	Cork is a type of this layer of bark near the phloem ["FLOW-um"].	(cork) <u>**cambium**</u>
3	This adjective describes cambium that produces xylem [ZY-lum] towards the interior but not phloem ["FLOW-um"] to the exterior.	<u>**unifacial**</u> cambium

Extra Question #8: Social Studies

10 points per part

	Martín Vizcarra became the president of this country when Pedro Pablo Kuczynski [koo-CHIN-skee] resigned in the middle of several corruption scandals.	
1	Name this country that contains several locations important to the Inca people, including Cusco [KOOS-koh] and Machu Picchu [MAH-choo PEE-choo].	(Republic of) **Peru** [or (República del) **Perú**]
2	This person, who is also considered the liberator of Argentina and Chile, declared Peru's independence in 1821. This person met with Simón Bolívar the next year.	José (Francisco) de **San Martín**(y Matorras)
3	Due to a secret alliance, Peru joined Bolivia during this war against Chile. It is sometimes called the Saltpeter War.	War of the **Pacific** [or Guerra del **Pacífico**]

Extra Question #9: Social Studies

10 points per part

	This name was shared by a ninth-century leader and a leader who was in power from 976 to 1025.	
1	Give this name held by an emperor who defeated Bardas Skleros and later Bardas Phokas, and whose continued victories gave him the nickname "Bulgar-Slayer".	**Basil** (II)
2	Basil the Bulgar-Slayer led this empire that was originally the Eastern Roman Empire.	**Byzantine** Empire [accept **Byzantium**]
3	When the Byzantine Empire temporarily lost control of its capital in 1204, Theodore I Laskaris set up an empire in this city. This city was the site of a council in 325 overseen by Constantine.	**Nicaea** [ny-SEE-uh] [prompt on **Iznik**]