

# NEW TRIER SCOBOL SOLO 2012

## ROUND 12

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1. As a surreal number, 2 is defined as the pairing of 1 and this. According to the axiom of infinity, this must be an element of any infinite set, and properties true of its elements are known as vacuous truths. This object is the only element of its power set. Every set contains this as a subset, and the union of this set with a set  $S$  is  $S$ . Over the real numbers, this is the solution set to  $x$  squared equals negative 1. Name this complement of the universal set, which contains no elements.

ANSWER: empty set [accept null set; prompt on descriptions like the set with no elements]

2. This subject of a biography by Arnold Rampersad wrote a poem in which the narrator avoided suicide because the water was too cold and the jump was too far down. In another poem, the tears of the folks that brought flowers and the girl who paid the preacher make a night funeral grand. Another work, which for a very short time was used in Rick Santorum's slogan, states "We, the people, must redeem the land / And make America again!" Another work, about a person who is sent to eat in the kitchen because he is the darker brother, is "I, Too, Sing America". Name this poet who wrote "Theme for English B", "The Negro Speaks of Rivers", and "Montage of a Dream Deferred".

ANSWER: (James Mercer) Langston Hughes

3. The manganese atoms in the Heusler alloy exhibit this property that also appears when terbium and dysprosium [dis-PROH-see-um] are cooled. Pierre-Ernest Weiss described how this sometimes only exists within a section of a substance known as a domain. The phenomenon known as anti-*this* exists below the Néel temperature, while this phenomenon, because it can be overcome by the motion of thermal energy, only exists below the Curie temperature. This property remains even after its cause is removed, an effect known as hysteresis. Name this effect found in lodestone, cobalt, nickel, and the element it is named for, an effect often contrasted with paramagnetism and diamagnetism.

ANSWER: ferromagnetism [accept word forms; prompt on magnetism; prompt on magnetic dipole moment]

4. In this state, Ann Wagner was recently elected to the US House, and Lacy Clay was re-elected. Dave Spence unsuccessfully attempted to defeat Governor Jay Nixon, the successor of Matt Blunt, in the 2012 election. Blunt's father Roy is one of its senators, and it recently re-elected its other senator despite a scandal over airplane payments. She was re-elected in part due to controversial statements over whether pregnancies can be caused by rapes that was made by her opponent. Name this state where Claire McCaskill kept her senate seat by defeating Todd Akin [AY-kihn].

ANSWER: Missouri

5. After a successful defense, the victors followed this effort with an offensive victory at the Battle of Jargeau [zhar-zhoh]. This effort was slowed down after its leader Thomas Montacute, Earl of Salisbury, was wounded and then died. He was replaced by William de la Pole, Earl of Suffolk, and Lord John Talbot, who eventually abandoned the effort. If it had been successful, it would have given John Plantagenet a chance to rule France, but this reversed the trend which included the Battle of Agincourt fourteen years earlier. The coronation of Charles the Seventh took place soon afterwards. Name this siege by the Loire [lwahr] River that was stopped in 1429 by forces under Joan of Arc.

ANSWER: Siege of Orléans [or-lee-ahn] [accept Battle of Orléans; prompt on Loire Campaign; prompt on Hundred Years' War]

6. Alessandro Marcello wrote a concerto in D minor for this instrument with strings and basso continuo, and a sonata by Francis Poulenc for this instrument ends with the *Déploration* movement. A pair of these instruments takes over parts of *Arrival of the Queen of Sheba* in Handel's *Solomon*, and this instrument has a solo after the drums at the beginning of the second movement of Beethoven's *Eroica* Symphony. This is the namesake of a family of instruments that includes the heckelphone and English horn, and it represents the duck in Sergei Prokofiev's *Peter and the Wolf*. Name this double reed instrument pitched higher than the bassoon.

ANSWER: oboe

7. This writer stated that he was "born for the service of mankind" and stated that he was in favor of the "discovery of all operations and possibilities of operations" in his first scientific work, *Valerius Terminus*. In another work, he describes an island west of Peru called Bensalem which contains Salomon's House, where lots of great scientific experiments are performed. Another work by him, which follows his *The Divisions of the Sciences* in *The Great Instauration*, called for rejecting traditional idols and applying the scientific method. Its title, which references an Aristotle work, translates as *New Instrument of Science*. Name this early-17th-century writer of *New Atlantis* and *Novum Organum*.

ANSWER: Francis Bacon

8. This English king successfully supported Holy Roman Emperor Maximilian I at the Battle of the Spurs, and while he was gone his troops defeated Scottish King James IV at the Battle of Flodden. He ordered the execution of Cardinal John Fisher, and in an affair with Elizabeth Blount, this man fathered Henry FitzRoy. This person became king because his older brother Arthur died before his father. He married Arthur's widow, a daughter of Ferdinand and Isabella who had several unsuccessful pregnancies, and he passed the Act of Supremacy when Pope Clement VII refused to annul their marriage. Name this king who went on to marry Jane Seymour, Catherine Parr and other women after his marriage to Catherine of Aragon.

ANSWER: Henry VIII [8] Tudor [prompt on Henry Tudor]

9. The only sporophytes that do not contain these are liverworts. They are surrounded by cells that lose potassium when triggered by abscisic acid, reversing a process started by phototropin and causing a loss of osmotic pressure and turgor. Those parenchyma [pair-en-KY-mah] cells next to these cells are called guard cells. Changes in these structures, which often take place in the morning and late afternoon, have a direct impact on the rates of transpiration and respiration of the plant. Name these gas exchange locations on a plant epidermis, essentially tiny holes.

ANSWER: stomata [do not accept "stroma"]

10. One character created by this author spends several days preparing to bump into an officer after being pushed away from a fight, but is disappointed that the officer seems not to notice being bumped into. Another one of this author's characters tells a parable that involves Jesus appearing in Seville during the Inquisition. That character does not believe in morality, but he questions his beliefs when a character believed to be his half-brother murders their father. Another of his characters uses an axe to murder a pawnbroker and her half-sister. Name this Russian author of *Notes from Underground*, *The Brothers Karamazov*, and *Crime and Punishment*.

ANSWER: Fyodor (Mikhailovich) Dostoyevsky

11. In one picture by this artist, a boy with a laurel and blue cape is putting on his sandals as trumpeters herald an upcoming battle. Other people in the work have laurels or weapons raised in the air, and the main character holds a sword and a spear. Another work shows Hersilia standing between her husband and her father with her babies in order to prevent a battle. In addition to *Leonidas at Thermopylae* and *The Intervention of the Sabine Women*, this artist painted a father holding three swords in the air with his son's hands outstretched to them. Another work shows a man holding a note in a bathtub after he has been stabbed. Name this supporter of Napoleon who painted *Oath of the Horatii* and *The Death of Marat* [mar-ah].

ANSWER: Jacques-Louis David [dah-veed]

12. This person credited with the saying "To hesitate is to perish" claimed that he wanted to shoot Francisco de Miranda, whom he had served under, but was restrained from doing so and arrested him instead. His mistress Manuela Sáenz prevented an assassination attempt against him that was blamed on Francisco Santander. One of his military actions was named the Admirable Campaign and took place soon after he explained an earlier loss in his Cartagena [kar-tah-HAY-nah] Manifesto. After some success years later, he was succeeded by his assistant Antonio José de Sucre as president of a country named for him. Name this leader of several South American countries known as "The Liberator".

ANSWER: Simón Bolívar

13. In graph theory, this refers to a process of treating each strongly connected component of a graph as a single vertex. This term also refers to a Wilson cloud that can accompany a mushroom cloud and that is caused by a temporary cooling of the air. This term is also associated with chemical reactions in which two large molecules combine and lose a small molecule, such as an enol [EE-nawl] and a carbonyl [CAR-bahn-EEL] combining to form an aldol and a water molecule. This process typically occurs towards the end of distillation, and this term is used in the name of the fifth state of matter, following the names of Bose and Einstein. Give this term commonly used to name the phase transition from gas to liquid.

ANSWER: condensation [accept word forms such as condensate or condense]

14. All places of worship in this religion practice *langar*, which is the providing of food for all people of all religions. Though worshippers are expected to stand for the Ardas prayer, they generally sit on the floor. When this religion was being established, its houses of worship were called dharamsalas, but they are now called gurdwaras. Followers can be called Khalsa, who at all times are supposed to have a metal bracelet, a wooden comb, uncut hair, a sword, and certain undergarments, collectively called the five K's. Men use Singh and women use Kaur as their last names. Name this religion centered in the Punjab region of Pakistan and India that began with ten gurus.

ANSWER: Sikhism

15. Heronian triangles have these numbers for both side lengths and areas. A spiral can be used to show that these numbers are countably infinite, and they are an unusual combination of countable and dense. Functions named for this set can have at most one oblique or horizontal asymptote but may have many vertical asymptotes or removable discontinuities. When coefficients of a polynomial are integers, a list of possible zeroes in this set can be generated by its namesake root theorem. The set can be represented as ordered pairs with the latter number in the pair not allowed to equal zero. When its numbers are represented as decimals, the digits must either terminate or repeat. Name this set whose elements can be written as an integer divided by a nonzero integer.

ANSWER: rational numbers [or rationals; accept Q]

**16.** In this story, the women—who wear faded house dresses and sweaters—arrive shortly after their men, who speak of planting and rain, tractors and taxes. Clyde Dunbar is not present because he broke his leg, and a saying in this story ends with the words “corn be heavy soon”. Steve Adams is the first person called, and at the end of the story he is at the front of the crowd. Little Davy is given some pebbles near the end, a very short time after Mr. Graves helps him open his white sheet of paper. Mr. Summers wants to make a new box to replace the aging one that holds the tickets. Name this story that ends with the stoning of Tessie Hutchinson, written by Shirley Jackson.

ANSWER: “The Lottery”

**17.** The “blanc” type of this art form features completely white costumes and was pioneered by an Adolphe Adam character. George Balanchine’s works in this genre are often called “neoclassical”. Michel Fokine [mee-shel foh-keen] is often called the “father” of the modern form of this art, which was pioneered in some western nations by Léonide Massine [lay-oh-need mah-seen]. This artistic form was spurred on in Russia by the work of Sergei Diaghilev, who established a company that trained Vaslav Nijinsky and Anna Pavlova. Name this style of dance that accompanies Tchaikovsky’s *Swan Lake*.

ANSWER: ballet(s) [prompt on dance]

**18.** This president funded irrigation projects in western states by signing the Newlands Reclamation Act, and he set up a fact-finding commission to end the Anthracite Coal Strike. He later agreed not to limit immigration from Japan as long as Japan did not allow emigration to the United States, which became known as the Gentlemen’s Agreement. He increased the scope of the federal government by signing the Meat Inspection Act and the Pure Food and Drug Act, as well as by establishing the National Forest Service and putting Yosemite under federal control. He broke up the Northern Securities Company as part of his “trustbusting” policy. Name this president who replaced William McKinley and had served as a Rough Rider during the Spanish-American War.

ANSWER: Theodore Roosevelt [or “Teddy” Roosevelt; accept TR; prompt on Roosevelt]

**19.** An effort to extract this element from seawater was made by Fritz Haber, who was disappointed by the results. Mylar coated with this is used to protect artificial satellites from solar heat, and because it can be beaten into sheets about a tenth of a micron thick, this is the most malleable element. That property made this element useful as a foil to Ernest Rutherford in his discovery of atomic nuclei. It does not react with nitric acid but does react when nitric acid is combined with hydrochloric acid to make aqua regia. Name this metal with a yellowish color that was known in Latin as aurum.

ANSWER: gold

**20.** One narrator created by this author conceals her ex-husband’s name, calling him the foundation of her ruin, but is grateful to her maid Amy. Another narrator, who refuses to give her own birth name, marries Robert, Jemy, and a few other men, eventually leaving her Maryland farm to move back to England. Another one of this writer’s narrators sells Xury [ZUR-ee] as a slave to a Portuguese captain. That character, probably based in part on Alexander Selkirk, converts a cannibal to Christianity on a desert island. Name this author of *Roxana*, *Moll Flanders*, and *Robinson Crusoe*.

ANSWER: Daniel Defoe

**TB1.** A man points his hand towards the sun atop a crag in the back of a painting of this scene with a wooden scaffold built from a stone wall by Filippino Lippi. A man with a turban stares forward in Rubens’ version, and a man in a green cap whispers to an old bearded man in a version by Brueghel [BROO-gul] the Elder. Many mounted men take a windy road to a white building in the Gentile da Fabriano painting of this scene which features a gold-bridled horse and halos on the titular figures’ heads. The version by Hieronymous Bosch shows two peasants on the roof of the manger. Name this scene in which three men gave gold, myrrh, and frankincense to the baby Jesus.

ANSWER: *The* Adoration *of the Magi* [or *The* Adoration *of the Kings*; prompt on Filippino Lippi before “this scene”]

**TB2.** This country is home to an American airbase that was extended to create the controversial city of Qanaaq. That base, Thule, was home to the 1968 crash of a B-52 bomber holding four hydrogen bombs. The success of Operation Weserübung [VAY-zur-UR-bung] led to Franklin Delano Roosevelt's declaration that the Monroe Doctrine applied to this country. This country left the European Union due to substantial controversy over fishing rights. Its status was partially resolved in 1814 by the Treaty of Kiel, which gave it to the nation that still controls it today. Identify this country that voted to give itself more autonomy from Denmark in 2008, the world's largest island.

ANSWER: Greenland [or Kalaallit Nunaat]

**TB3.** John Steinbeck's sequel to *Cannery Row* had this day of the week in its title, and G.K. Chesterton wrote a novel whose title is *A Man Who Was* this day. In addition to Saturdays and Mondays, this is the day of the week when Jews read from the Torah. This is believed to be the day of the Last Supper, and Catholics refer to the one before Easter as Maundy. Name this day associated with the Norse god Thor that falls after Wednesday.

ANSWER: Thursday