

2015 OAC Regionals – Round 4

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Category Round

American Literature: Name these authors who wrote about teachers.

Team A: What author of *The Little Foxes* wrote about two teachers named Karen Wright and Martha Dobie, who are accused of lesbianism, in her play *The Children's Hour*?

ANSWER: Lillian Florence “Lilly” **Hellman**

Team B: What author of *O Pioneers!* wrote about a teacher named Godfrey St. Peter moving into a new home in *The Professor's House*?

ANSWER: Willa Sibert **Cather**

Tossup: This author wrote about a Professor at Waindell College who is interested in lepidoptery (leh-pih-DOP-tuh-ree) in his novel *Pnin* (PEE-nin). During his time in America, this author was a professor at Cornell College, where he apparently taught an English class to Thomas Pynchon. One of his books ends with the execution of Cincinnatus (SINN-sih-natt-us) C., who is jailed for the crime of gnostic (NAW-stik) turpitude. This author of *Invitation to a Beheading* created the fictional author of Clare Quilty in a novel in which Dolores Haze is the subject of fantasies by Humbert Humbert. Name this Russo-American author who penned *Lolita*.

ANSWER: Vladimir Vladimirovich **Nabokov**

Mathematics: Pencil and paper ready. Give the following related to polynomials. You will have 45 seconds for each team question.

Team B: Find all three zeros of the following polynomial: $2x^3 + 10x^2 - 28x$ (“two x cubed, plus ten x squared, minus twenty-eight x”).

ANSWER: $x = \mathbf{0, 2, -7}$ [accept in any order; do not prompt on partial answers]

Team A: Find all three zeros of the following polynomial: $5x^3 - 15x^2 - 90x$ (“five x cubed, plus fifteen x squared, minus ninety x”).

ANSWER: $x = \mathbf{0, 6, -3}$ [accept in any order; do not prompt on partial answers]

Tossup: **Pencil and paper will not be necessary.** The factorization of polynomials is often done via Berlekamp's (BUR-luh-camps) algorithm, which factors polynomials over fields with this property. Automata (uh-TOM-uh-tuh) theory often studies nondeterministic and deterministic machines that have a set of states with this property. Formally, a set has this property if there doesn't exist a subset of that set with the same cardinality. This property is not possessed by the set of all primes, but it is possessed by the set of all even primes. Name this property of being able to be completely enumerated, whose opposite is represented with the lemniscate (LEM-nis-kayt).

ANSWER: **finite** [accept word forms such as **finitude**]

World History: Name these 20th century European leaders.

Team A: This British leader noted that “I have nothing to offer but blood, toil, tears, and sweat” shortly after become Prime Minister in 1940 as the successor to Neville Chamberlain.

ANSWER: Winston Leonard Spencer **Churchill**

Team B: Konstantin Chernenko was the predecessor of this final leader of the Soviet Union, who instituted the liberal policies of *glasnost* and *perestroika* prior to the nation’s dissolution in 1991.

ANSWER: Mikhail Sergeyevich **Gorbachev** (GOR-buh-choff)

Tossup: The “last days” of this leader’s tenure was the subject of a book by Hugh Trevor-Roper. The Hossbach Memorandum outlined the foreign policies of this ruler, who approved a mass deportation policy known as the Madagascar Plan. This ruler’s political opponents were assassinated during Operation Hummingbird, also known as the Night of Long Knives. Before rising to power, he was jailed for a failed coup known as the Beer Hall Putsch; while in jail, he authored his autobiography, *Mein Kampf* (“mine” kahmpf). The 1934 death of Paul von Hindenburg led to a consolidation of power for what genocidal (jen-uh-SIDE-uhl) leader of Nazi Germany during World War II?

ANSWER: Adolf **Hitler**

Fine Arts: Name these art movements.

Team B: An 1872 painting of a sunrise over the Le Havre (luh hahv) harbor provided inspiration for the name for this art movement whose practitioners included Mary Cassatt and Edgar Degas.

ANSWER: **Impressionism** [accept **Impressionist** and other word forms; do not accept “Post-Impressionism” or other word forms]

Team A: This early 20th century abstract art movement was co-founded by Georges Braque (zhorzh brahk) and a Spanish painter who had Blue and Rose Periods.

ANSWER: **Cubism** [accept **Cubists** and other word forms]

Tossup: One painting from this movement shows a buxom, red-headed woman smoking next to a red drink that sits on a counter; that work is *At the Bar* by Maurice de Vlaminck (vlah-MINK). The name of this movement was derived from a comment made by art critic Louis Vauxcelles (LOO-ee voh-“SELL”). One practitioner of this movement created a portrait of his wife titled *The Green Stripe*; another practitioner was Andre Derain (AHN-dray duh-“RAN”). The best known artist of this movement created a painting with a blue and green backdrop that shows five nude women holding hands in a circle while frolicking; that painting is titled *The Dance*. With a name that is French for “wild beasts,” name this early 20th century art movement practiced by Henri Matisse (muh-TEESE).

ANSWER: **Fauvism** (FOH-vizm) or **Fauvists** (FOH-vists) or les **Fauves** (fohvz)

Life Science: Answer the following about the mitochondria.

Team A: The inner folds of a mitochondrion's inner membrane are given this name.

ANSWER: cristae

Team B: This system, the last portion of cellular respiration, takes place in the mitochondria and creates a proton gradient to generate ATP.

ANSWER: ETC or electron transport chain [prompt on partial answers]

Tossup: A mitochondrial protein involved in this cellular process normally transfers electrons from coenzyme Q to complex IV (four) of the electron transport chain. During this process, phosphatidyl (FOSS-fa-tuh-dil) serine is expressed on the plasma membrane. This process can be induced by TNF or by the Fas ligand. Cisplatin can cause this process to occur since it suppresses DNA repair mechanisms. Cytochrome c is released from the mitochondria during this process, after which it activates caspases. This process is intentional, unlike necrosis. Name this process of programmed cell death.

ANSWER: apoptosis

English / World Literature: Name these British poets.

Team B: What British poet, the author of "When I was One and Twenty" wrote about being able to "see the cherry hung with snow" in his poem "Loveliest of Trees"?

ANSWER: Alfred Edward Housman

Team A: What other British poet described "happy bells, across the snow" in his poem "Ring Out", which is part of a sequence commemorating Arthur Hallam?

ANSWER: Alfred, Lord Tennyson [or 1st Baron Tennyson]

Tossup: This author wrote about seeing his cradled infant Hartley in a poem that begins by describing how the title phenomenon "performs its secret ministry unhelped by any wind." He addressed his "pensive Sara" at the beginning of a poem about a musical instrument "placed length-ways in the clasping casement." This author of "Frost at Midnight" and "The Aeolian (ee-OH-lee-in) Harp" had one of his works interrupted by the Person from Porlock. That work is set where "Alph, the sacred river, ran" and describes a "stately pleasure-dome" in Xanadu (ZAN-uh-dew). Name this British poet who wrote "Kubla Khan."

ANSWER: Samuel Taylor Coleridge

American Government / Economics: Name these Supreme Court cases.

Team A: The ruling from this 1966 case established that during an interrogation, criminal suspects shall be advised of their rights to silence and an attorney via a namesake warning.

ANSWER: *Ernesto Arturo Miranda v. Arizona* [accept Miranda warnings or Miranda rights]

Team B: The doctrine of judicial review was established in this 1803 case which stemmed from the sitting Secretary of State's refusal to deliver the commission of a man whose appointment was made by John Adams on the latter's final day in office.

ANSWER: *William Marbury v. James Madison*

Tossup: In his final appearance before the Supreme Court, former Democratic presidential nominee John W. Davis argued on behalf of the defense for this case. The rulings made four years earlier in *Sweatt v. Painter* and *McLaurin v. Oklahoma State Regents* were referenced in the unanimous opinion for this case. In a subsequent case, the Supreme Court ruled that its decision must be implemented "with all deliberate speed." Thurgood Marshall, while working for the NAACP, argued for the plaintiffs in this case, which overturned the "separate but equal" doctrine established in *Plessy v. Ferguson*. Name this 1954 case which ruled that segregation in schools was illegal.

ANSWER: *Oliver Brown, et al. v. Board of Education of Topeka, Kansas, et. al.*

Physical Science: Answer the following about the periodic table.

Team B: This quantity increases as one moves left and down on the table. Elements with more energy levels will have a larger value of this, which is decreased with increased nuclear charge.

ANSWER: atomic radius [or Van der Waals radius; or covalent radius; or ionic radius; prompt on "radius"]

Team A: This number increases as one moves right on the periodic table, and it is simply defined as the number of electrons an atom has on its outermost shell.

ANSWER: valence electrons

Tossup: Two elements in this group are responsible for M+2 peaks in mass spectroscopy and can be distinguished from each other based on whether those peaks are at a 3 to 1 or 1 to 1 ratio. The rarest element in this group is created through attacking bismuth-209 with alpha particles. Along with carbon, the lightest of this group of elements is found in Teflon. Another element in this group can be used to test for starch. The two lightest elements of this group form diatomic gases at STP, while another is the only nonmetal to be liquid at room temperature. Name these group (*) 17 elements which include iodine, chlorine, and fluorine.

ANSWER: halogens [accept group 17 before (*)]

Geography: Name these South American nations.

Team A: The Rio Negro bisects this nation before flowing into a namesake river, that then empties into the Rio de la Plata estuary along this nation's southern border.

ANSWER: Oriental Republic of Uruguay (YOOR-uh-gway) [or Republica Oriental del Uruguay]

Team B: The Gulf of Guayaquil (GWY-ah-keel) takes its name from the most populous city in this nation within the Andes Mountains that controls the Galapagos Islands.

ANSWER: Republic of Ecuador [or Republica del Ecuador]

Tossup: This nation borders a series of straits known as the Dragon's Mouths. The southeast portion of this nation contains Canaima National Park, which is dominated by mesa-like formations known as tepuis (TAY-pweez). This nation controls the Tablazo Strait and a body of water that sees frequent lightning strikes at the mouth of the Catatumbo River. Its longest river, the Orinoco, receives the water that flows through this nation's Angel Falls, which is the highest waterfall in the world. The island nation of Trinidad and Tobago is just off the coast of what country which controls Lake Maracaibo and has its capital at Caracas (kah-RAH-kahs)?

ANSWER: Bolivarian Republic of Venezuela [or Republica Bolivariana de Venezuela]

American History: Name the following things related to the Cold War.

Team B: Operation Vittles was the codename for this eleven month event in which the U.S. and its allies flew in supplies to a certain city after all of its land accesses were blocked in 1948 by the Soviet Union.

ANSWER: Berlin airlift

Team A: Michael Collins and "Buzz" Aldrin were two of the three members of this NASA space mission that fulfilled the "Space Race" goal of being the first to land a man on the moon.

ANSWER: Apollo 11 [prompt on "Apollo"]

Tossup: It was revealed in 2002 that Vasili Arkhipov played a large role in preventing escalation during this event. Soviet spy Alexander Feklisov acted as a negotiator during this event, which prompted the creation of group known as ExComm. This event occurred in response to actions taken during Operation Anadyr, and Rudolf Anderson was killed while flying a U-2 spy plane during this event. A hotline between Washington D.C. and Moscow was created in response to this event, which was ended when the U.S. agreed to remove Jupiter MRBM's from Italy and Turkey. Name this 1962 event in which the U.S. set up a blockade after discovering Soviet nuclear weapons on a certain (*) Caribbean island.

ANSWER: Cuban missile crisis [accept October crisis or The Missile Scare; accept Caribbean crisis before (*)]

Alphabet Round – Letter N

1. In classical mechanics, this is the force that counteracts the gravitational force on an object. It also describes vectors that are perpendicular to a plane.
2. A.D. 532 conflict during the reign of Byzantine Emperor Justinian that broke out amid a chariot race.
3. *Residence on Earth* is a major collection by what Chilean poet, who more notably wrote *20 Love Poems and a Song of Despair*?
4. American body of water which surrounds Aquidneck Island.
5. **(TWO WORD ANSWER)** – In this situation, there is no way to alter an agent's action such that changing that agent's action would result in a better payoff.
6. **(TWO WORD ANSWER)** – 1787 legislation which established the methods by which the lands from America's first organized territory would be admitted into statehood.
7. Set in the country of Costaguana, this novel features the character of Charles Gould, who owns a silver mine near the port of Sulaco.
8. Type of organic molecule with a functional group consisting of a carbon triple bonded to a nitrogen; it is found in a namesake type of glove commonly used in laboratories.
9. **(MULTI-WORD ANSWER)** – 1912 painting which resembled "an explosion in a shingles factory" according to art critic Julian Street.
10. Norse god of the sea, whom Skadi married after only looking at his feet.
11. Along with the Hugo Award, this is one of the two major science fiction awards for novels in the U.S. It was won in 2014 by Ann Leckie for her novel *Ancillary Justice*.
12. German city which was used to host the trials for Nazis accused of war crimes committed during World War II.
13. This term refers to tides that are at their minimum, unlike spring tides.
14. The Wahhabi group Boko Haram has kidnapped many schoolchildren in this country, such as the hundreds of schoolgirls in its town of Chibok.
15. **(HYPHENATED ANSWER)** – 1517 document that was authored by Martin Luther to protest various practices of the Catholic Church and posted to a church door in Wittenberg.
16. Composer of symphonies nicknamed "The Four Temperaments" and "Inextinguishable."
17. 1842 treaty which ended the First Opium War between the United Kingdom and China.
18. The most common type of white blood cell in the body, which are some of the first to react in the immune response.
19. This Japanese-American sculptor is responsible for creating many of the stage designs of the ballets of Martha Graham.
20. This author wrote a novel about a greedy dentist titled *McTeague* as well a novel about a conflict between railroaders and farmers in the San Joaquin Valley in *The Octopus*.

Alphabet Round – Letter N Answers

1. normal force
2. Nika riots or Nika revolts
3. Pablo Neruda
4. Narragansett Bay
5. Nash equilibrium (TWO WORD ANSWER)
6. Northwest Ordinance of 1787 (TWO WORD ANSWER)
7. Nostromo, *A Tale of the Seaboard*
8. nitrile
9. Nude Descending a Staircase, No. 2 (MULTI-WORD ANSWER)
10. Njord (nyord) [or Njordhr or Njordh or Njodr]
11. Nebula Award
12. Nuremberg [or Nurnberg]
13. neap tides
14. Federal Republic of Nigeria
15. Ninety-Five Theses on the Power and Efficacy of Indulgences (HYPHENATED ANSWER)
16. Carl August Nielsen
17. Treaty of Nanking or Treaty of Nanjing
18. neutrophils or neutrophil granulocytes
19. Isamu Noguchi
20. Benjamin Franklin “Frank” Norris Jr.

Lightning Round

1. One character in this film repeatedly states “I stick my neck out for nobody.” This film, which won an Academy Award for director Michael Curtiz, opens with Ugarte (ew-GAR-tee) claiming that he has letters of transit from German couriers. At another point, a character becomes upset when the song “As Time Goes By” plays. It ends with Rick Blaine telling Ilsa Lund to board a plane with her husband Victor Lazlo. The line “Louis, I think this is the beginning of a beautiful friendship” ends what 1942 movie that stars Humphrey Bogart and is set in a Moroccan city?

ANSWER: Casablanca

2. One of these events was documented by the crew of the *Big Stink*. The Genbaku (ghen-BAH-koo) Dome memorializes one of these events, survivors of which are known as *hibakusha* (hee-bah-KOO-shah). The first of these events occurred during the Trinity Test, and the two most notable of these events were carried out by aircraft named *Bockscar* (BOX-car) and *Enola Gay*. Name these destructive events which were the objective of the Manhattan Project and most notably implemented at Nagasaki and Hiroshima, Japan in August 1945.

ANSWER: detonation of a nuclear weapon or detonation of an atomic weapon [generously accept any equivalent answers that mention nuclear or atomic weapons/bombs/etc. being deployed/utilized/dropped/set off/etc. at White Sands Missile Range/Hiroshima/Nagasaki]

3. In his own time, this author was famed for horror novels such as *The Jewel of Seven Stars* and *The Lair of the White Worm*. Inspired by Sheridan Le Fanu’s “Carmilla”, he wrote a novel in which the title character is stabbed to death by Quincey Morris. That novel’s title character infects Jonathan Harker’s fiancée (fee-AHN-say) Mina and is tracked by Abraham van Helsing. Name this British author who was inspired by the historical figure Vlad the Impaler to write *Dracula*.

ANSWER: Abraham “Bram” Stoker

4. Mordehai Milgrom’s MOND (mahnd) theory alters this force to explain the anomalous rotation curves of certain galaxies. The equivalence principle states that inertial mass and this type of mass is indistinguishable. The first measure of a constant that is used in calculating this force’s strength was given by Henry Cavendish, who measured the earth using a torsion balance. The weakest of the four fundamental forces is what force that gives rise to weight?

ANSWER: gravity [or gravitation or gravitational force]

5. One text about this religion features an emperor named Wonton, who dies after a hole is bored within him. A man who is unsure if he is a butterfly when he dreams about a butterfly is central to this religion’s philosophy. A text of this religion states “the name that can be named is not the eternal name.” This religion emphasizes a principle of non-action through action, which is termed *wu wei* (woo way). Name this religion, sometimes called “The (*) Way,” which was popular in ancient China.

ANSWER: Taoism (DOW-izm or THOW-izm) [or Daoism; accept word forms; prompt on “The Way” before (*)]

6. In his work *On Generation and Corruption*, this philosopher proposed the existence of aether (EE-thur) as the quintessence. His theory of the four elements divided them into the qualities of dryness, wetness, hotness, and coldness. This man wrote about the nature of tragedy in his *Poetics* and outlined a theory of virtue in a work named for his son, the *Nicomachean Ethics*. Name this ancient Greek philosopher who tutored Alexander the Great.

ANSWER: Aristotle

7. This president was the target of an impeachment attempt led by Representative John Botts, and he signed into law legislation known as the Black Tariff. Two of his Cabinet members were killed in the USS *Princeton* explosion, and he died in 1862 after being elected to serve in the Confederate government. He signed a treaty to annex Texas, which officially occurred during the presidency of his successor, James Polk. Name this president dubbed “His Accidency” after taking over for the deceased William Henry Harrison in 1841.

ANSWER: John Tyler

8. This man's last work, *Letters from the Black Sea*, contains a series of requests to Germanicus to rescind a certain punishment. His poem *Fasti* is structured around the Roman calendar. He spent the last years of his life in Tomis after he was exiled due to one of his own errors. One of his books, which contains the stories of Baucis (BAW-kiss) and Philemon (FILL-uh-mon) and Vertumnus and Pomona, centers on mythological translations. Name this Latin author of *Metamorphoses*.

ANSWER: Publius **Ovidius** Naso

9. Ten small scenes from the Passion of Christ adorn the edge of a mirror included in this painting. In this work a blooming cherry tree can be seen on the left through an open window, below which sits four oranges. A pair of clogs and a dog appear on the floor in front of the two figures in this painting, who are shown holding hands. Name this 1434 painting by Jan van Eyck (yahn van ike) which depicts the title Italian merchant and his presumed wife.

ANSWER: *The **Arnolfini Marriage*** [accept *The **Arnolfini Wedding*** or any answer with **Arnolfini** and the suggestion of marriage; accept **Arnolfini Portrait** or **Arnolfini Double Portrait**]

10. During the so-called Great Debate, Harlow Shapley argued that this structure was actually part of the Milky Way. This astronomical object, sometimes called (*) M31, has "arms" that Walter Baade (bah-duh) infamously called "beads on a string." This is the largest member of the Local Cluster, and it appears blueshifted towards us, indicating that it will eventually collide with our galaxy. Name this spiral galaxy which is the closest to the Milky Way.

ANSWER: **Andromeda** galaxy [accept **M31** before (*)]

11. Inspired by Friedrich Nietzsche (NEET-shuh), this social scientist argued that the creative spirit can be split into an Apollonian and Dionysian component in his book *Toward a Psychology of Being*. In that book, this man discusses self-validating peak-experiences. In his paper "A Theory of Human Motivation" he argued that physiological concerns fell below safety, love, esteem, and self-actualization. Name this psychologist who created a pyramid that illustrates a hierarchy of human needs.

ANSWER: Abraham Harold **Maslow**

12. One character in this book, Mr. Dolphus Raymond, drinks from a bottle in a paper bag and surprises the narrator when he reveals the drink to be Coca-Cola. This novel's narrator, who is served by the maid Calpurnia, is attacked while dressed in a costume consisting of a piece of ham while returning back from a Halloween pageant. Its characters include Sheriff Tate and Boo Radley, who intervenes when Bob Ewell ("YOU"-wool) assaults Jem and Scout Finch. Name this lone novel by Harper Lee.

ANSWER: **To Kill a Mockingbird**

13. This figure names a bridge which was the site of a battle that incited the start of the Second Sino-Japanese War. This figure was captured at the Battle of Curzola and imprisoned with Rustichello (roo-stih-KEH-loh) da Pisa, who authored *Il Milione* (eel meel-YOH-nay), or *The Million*, an account of this man's travels. Those travels occurred with his father and uncle, Niccolo and Maffeo, over a period of 24 years and included a visit to Kublai (KOO-blue) Khan. Name this Italian merchant who visited China in the 13th century.

ANSWER: Marco **Polo**

14. It's not concentration, but the partition coefficient describes the difference in this property between two different phases. Henry's law describes the strength of this property for gases, relating it to partial pressure. Its namesake constant is abbreviated K_{sp}. This property is decreased by the common ion effect and generally increases with temperature. Name this property of a substance to dissolve in a solvent.

ANSWER: **solubility** [accept word forms; do not accept "solubilization"]

15. This state's Poverty Point National Monument protects 3,000 year old Native American mounds. Much of the supply of Tabasco sauce comes from this state's Avery Island, and part of its western border lies along the Toledo Bend Reservoir and Sabine River. This state's most populous city borders Lake Pontchartrain and is home to an annual Mardi Gras (graw) celebration centered around Bourbon Street in its French Quarter. Name this U.S. state that is home to New Orleans.

ANSWER: **Louisiana**

16. Gabriel Faure's ("FOUR"-aze) piece of this genre ends with an "In Paradisum" seventh movement. Situated in each corner of the stage in another piece of this type are four brass bands; that piece was written by Hector Berlioz. Johannes Brahms wrote a "German" one of these pieces. Franz Sussmayer completed Wolfgang Mozart's piece of this type. Name this type of composition which is a (*) mass for the dead.

ANSWER: requiem mass [prompt on "mass" before (*)]

17. After landing on the island of Mysia, this figure wounded and was later talked into healing King Telephus (TELL-uh-"fuss"). At the behest of this figure's ghost, Polyxena (pah-lee-ZEE-nuh) was sacrificed at his tomb by his son, Neoptolemus (nee-ahp-TAH-luh-muss). Ajax the Great killed himself after being denied the armor belonging to this man, who was prompted by the death of Patroclus (PAH-troh-klus) to murder the Trojan prince Hector. Name this Greek fighter of the Trojan War who was killed by Paris with an arrow that hit his lone weak spot, his heel.

ANSWER: Achilles (uh-"KILL"-eez)

18. One poem by this writer describes Parson Thirdly, who states "Instead of preaching forty year, I wish I had stuck to pipes and beer." This author of "Channel Firing" set another of his poems on the last day of the 19th century; that poem begins "I leant upon a coppice (COP-iss) gate." This poet of "The Darkling Thrush" used the fictional region of Wessex as the setting of many of his novels, including one about Michael Henchard. Name this Victorian novelist who wrote *The Mayor of Casterbridge*.

ANSWER: Thomas Hardy

19. One commander with this surname had a longstanding feud with Jesse Elliott, stemming from a battle in which he took over command of the USS *Niagara*. Another commander with this surname established the 1854 Convention of Kanagawa, which opened up U.S. trade with Japan. In 2014, a U.S. governor with this surname, who has since retired, was indicted on two charges after trying to coerce a District Attorney to resign. Give this surname of U.S. Commodores Matthew and Oliver Hazard, as well as recently retired Texas governor Rick.

ANSWER: Perry [accept Oliver Hazard Perry or Matthew Calbraith Perry or James Richard "Rick" Perry]

20. Large amounts of CGG repeats on this structure cause a mutation in the FMR1 gene, leading to a disease that causes developmental disorders. When inactivated, this structure is called a Barr body. At least one extra one is found in Klinefelter's syndrome, while only one of these is present in Turner syndrome. Name this sex chromosome found in both males and females.

ANSWER: X chromosome [prompt on "chromosome" before "chromosome"; prompt on "sex chromosome" before "sex"]