

2014-15 MSHSAA Districts
Packet 1

First Quarter

TOSSUP – Social Studies

1. What structure, chiefly designed by Benjamin Wright, was nicknamed “Clinton’s Ditch” and built to connect the Hudson River with its namesake Great Lake?

answer: Erie Canal

<362338>

TOSSUP – Fine Arts

2. What artist painted the Olson farmhouse and barn in Cushing, Maine and a polio-stricken woman crawling towards them in his *Christina’s World*?

answer: Andrew (Newell) Wyeth [“WHY”-uth]

<377873>

TOSSUP – Communication Arts

3. What character, who laments “what a noble mind is here o’erthrown” after being told to go to a nunnery, is warned by her father Polonius [puh-LOH-nee-us] to shun Hamlet?

answer: Ophelia

<362765>

TOSSUP – Social Studies

4. A ruined “Great” city near Masvingo [mahss-VIN-goh] lends its name to what modern-day country, formerly known as Rhodesia [roh-DEE-zuh], that is now led from Harare [huh-RAR-ay] by Robert Mugabe [moo-GAH-bay]?

answer: (Republic of) Zimbabwe [zim-BAHB-way] (accept Great Zimbabwe)

<362398>

TOSSUP – Fine Arts

5. What man, who is nude except for a hat and boots in a Donatello bronze, is the subject of a Michelangelo statue in which he prepares to fight Goliath?

answer: David (or Dawud)

<371199>

TOSSUP – Miscellaneous

6. What food that releases propanethial [proh-payn-“THIGH”-al] S-oxide has a “Vidalia” [vih-DAYL-yuh] type, is caramelized for use in a French soup, and makes people “cry” when they chop it?

answer: onions (accept Vidalia onions or caramelized onions or French onion soup)

<378094>

TOSSUP – Science

7. What lipid-rich substance secreted by oligodendrocytes [AH-lih-goh-DEN-droh-sytes] and Schwann [shwahn] cells speeds up conduction of neurons by creating a namesake protective sheath?

answer: myelin [“MY”-uh-iin] (accept myelin sheath)

<362748>

TOSSUP – Mathematics (Computation)

8. Pencil and paper ready. What second-degree polynomial with a leading coefficient of 1 has its roots at x equals 7 and x equals negative 10?

answer: $x^2 + 3x - 70$ (= 0) (accept any order) [Given the roots, the polynomial is $(x - 7)(x + 10) = x^2 + 10x - 7x - 70 = x^2 + 3x - 70$.]

<322015>

TOSSUP – Social Studies

9. What structure, which will open a third set of locks in 2016, celebrated the 2014 centennial of the SS *Ancon's* first Atlantic-to-Pacific trip in 1914?

answer: Panama Canal (or Canal de Panamá)

<367210>

TOSSUP – Science

10. What force precisely measured in the Cavendish experiment is caused by spacetime curvature in general relativity and was conceived of by Isaac Newton?

answer: gravity or gravitational force

<319392>

TOSSUP – Mathematics

11. What Frenchman names a “rule of signs” describing polynomial [pah-lih-NOH-mee-ul] roots, and developed a system of geometry based on his namesake rectangular coordinates?

answer: René Descartes [reh-nay day-kart] (or Renatus Cartesius)

<370924>

TOSSUP – Communication Arts

12. What punctuation mark used to join two independent clauses, or to separate items in a comma-containing list, consists of a period above a comma?

answer: semicolon (do not prompt on “colon”)

<356268>

TOSSUP – Science

13. The Corvids [KOR-vids], Ursids [UR-sids], and Perseids [PUR-see-ids] are what kind of annual event that sends cometary debris through Earth's atmosphere making a spectacular show?

answer: meteor showers (prompt on partial answer)

<368895>

TOSSUP – Mathematics (Computation)

14. Pencil and paper ready. What is the length of the *shorter* base of a trapezoid whose area is 75, whose height is 5, and whose longer base is 20?

answer: 10 [$A = (1/2) \times h \times (b_1 + b_2)$, so $75 = (1/2) \times 5 \times (20 + b_2)$, so $150 = 5 \times (20 + b_2)$, so $30 = 20 + b_2$, and $b_2 = 10$]

<329325>

TOSSUP – Communication Arts

15. What author contrasted the devastating 1755 Lisbon earthquake with the optimistic philosophy of Dr. Pangloss in the satirical novella *Candide* [kan-deed]?

answer: Voltaire [vohl-tair] (or François-Marie Arouet [ah-roo-ay])

<368160>



2014-15 MSHSAA Districts
Packet 1

Second Quarter

TOSSUP – Social Studies

16. The youngest person ever to hold this position assumed it at age 39 in February 2014. The Palazzo Chigi [pah-LAHHT-soh KEE-ghee] is the official residence of holders of this position, who have included Romano Prodi [roh-MAH-noh PRO-dee] and the incumbent Matteo Renzi [muh-TAY-oh REN-zee]. For 10 points—name this head of government in Italy.

answer: prime minister of Italy (accept Presidente del Consiglio dei Ministri; accept prime minister after the word “Italy”)

<366814>

BONUS – Mathematics (Computation)

16. Pencil and paper ready. Consider the binomials [“by”-NOH-mee-ulz] x plus 1 and x squared plus 6.

A. If the function f of x equals the quantity x squared plus 6 divided by the quantity x plus 1, at what value of x will the function have a vertical asymptote [AA-sim-toht]?

answer: $x = -1$ (do not accept or prompt on “1”) [When $x = -1$, the denominator equals 0, and the function is undefined.]

B. If the function g of x equals the quantity x plus 1 divided by the quantity x squared plus 6, what is the limit of the function as x approaches infinity?

answer: 0 (do not accept “none” or similar answers) [As x becomes large, the constant terms become largely irrelevant and the function approximates $x/x^2 = 1/x$, whose limit at infinity is 0.]

<378055>

TOSSUP – Communication Arts

17. This writer crafted “word portraits” of visitors to her salon at 27 Rue de Fleurus [roo duh fluh-rooss] in Paris. She collected her memories of the 1920s in an “Autobiography” supposedly written by her lover, Alice B. Toklas [“TOKE”-luss]. For 10 points—name this expatriate who wrote, “A rose is a rose is a rose is a rose.”

answer: Gertrude Stein

<374016>

BONUS – Communication Arts

17. The title of an 1819 story by John William Polidori describes Lord Ruthven as one of these supernatural creatures.

A. Name these creatures which Polidori called “human blood-suckers.”

answer: vampires (or vampyres; accept The Vampyre; A Tale)

B. The pale-skinned Edmond Dantès [dahn-tez] is referred to as “Lord Ruthven” in this novel by Alexandre Dumas [doo-mah].

answer: The Count of Monte Cristo (or Le Comte de Monte-Cristo)

<367930>

TOSSUP – Mathematics (Computation)

18. Pencil and paper ready. Kate needs to know how many people voted in an election in which the ratio of the votes received by the three candidates was 1 to 2 to 5, and the winner received 45 votes. By using fractions, she computes —for 10 points— what total number of votes cast?

answer: 72 votes [The winner earned $5/(1 + 2 + 5) = 5/8$ ths of the votes, so the total number of votes was $45/(5/8) = 45 \times (8/5) = 9 \times 8 = 72$.]

<378121>

BONUS – Miscellaneous

18. Give the following about mortgages:

A. The acronym ARM [^{A-R-M}] refers to a type of mortgage in which the interest rate can vary over the lifetime of the loan. What do the letters “A” and “R” stand for in “ARM?”

answer: adjustable rate (mortgage)

B. For most mortgages, part of each payment is put into this type of account, from whence it can be used to pay insurance fees. Large eBay purchases may be made using a service known by this term.

answer: escrow account (or escrow service)

<374870>

TOSSUP – Science

19. The yield point, past which Hooke's law no longer applies, is known as this type of “limit.” This word also describes collisions in which the total kinetic energy does not change. Rubber demonstrates—for 10 points—what property of “bouncing back” after an object is deformed or stretched?

answer: elastic (accept elastic limit or elastic collision or elastic property or elasticity)

<373937>

BONUS – Science

19. Answer the following about dwarf planets:

A. This dwarf planet orbited by Charon [^{SHARE-en}] was considered a full planet until it was downgraded in 2006.

answer: (134340) Pluto

B. Like Pluto, most dwarf planets lie in this region that extends about 30 to 50 astronomical units from the Sun. It is named for a Dutch-American astronomer.

answer: (Edgeworth-) Kuiper [^{KYE-pur}] Belt

<374273>

TOSSUP – Communication Arts

20. This god tricked the dwarf Alvis into talking until the Sun turned him into stone. At Ragnarök [^{RAG-nuh-“rock”}], he takes nine steps after being fatally wounded by the Midgard Serpent. This husband of Sif wields the hammer Mjólnir [^{M'YOHL-neeer}]. For 10 points—name this Norse god of thunder.

answer: Thor

<376294>

BONUS – Social Studies

20. Name these Dutch cities:

A. This capital of the province of North Holland is the namesake of a New York City neighborhood that was the site of an African-American artistic “Renaissance.”

answer: Haarlem (or Harlem; accept Harlem Renaissance)

B. This Dutch city's Erasmus Bridge spans the Nieuwe Maas [^{NEE-vuh MAHS}], a distributary of the Rhine River. This city's port is one of the world's busiest.

answer: Rotterdam

<367785>

TOSSUP – Mathematics (Computation)

21. Pencil and paper ready. Jack needs to find the smallest whole number that has *exactly* five positive divisors. He realizes that a number with five divisors must be the fourth power of a prime number, and thus finds—for 10 points—what smallest whole number with five positive divisors?

answer: 16 [16 is the fourth power of 2; the divisors are 1, 2, 4, 8, and 16.]

<366179>

BONUS – Communication Arts

21. Icelandic has a “middle” type of this grammatical characteristic.

A. Name this characteristic of a verb, also called the “diathesis,” that indicates the relationship between the performer and target of that verb.

answer: voice

B. “The bonus part was answered by the player” is an example of this grammatical voice.

answer: passive voice

<372167>

TOSSUP – Science

22. A plus sign denotes the form of these structures that give rise to the so-called wild type. Maternal and paternal pairings of these structures are shown in Punnett [PUN-it] squares. These items can be dominant or recessive. For 10 points—name these structures whose variants are called alleles [uh-LEELZ].

answer: genes (accept alleles before “alleles”)

<372731>

BONUS – Science

22. A wedge is a moving form of this simple machine.

A. Name this simple machine that wraps around a cylinder in a helix to form a screw.

answer: inclined plane

B. For an inclined plane, this quantity equals the length of the plane surface divided by its height. For any simple machine, it is the ratio of the output force to the input force.

answer: mechanical advantage (prompt on “MA”)

<367996>

TOSSUP – Fine Arts

23. This man, who often used his lover Camille Claudel [kuh-meel kloh-del] as a model, was accused of casting from a live model to create *The Age of Bronze*. He included a depiction of Paolo [PAH-oh-loh] and Francesca [frahnh-CHESS-kah] called *The Kiss* in his *Gates of Hell*. For 10 points—name this sculptor of *The Thinker*.

answer: (François-)Auguste(-René) Rodin [oh-goost roh-dan]

<364217>

BONUS – Social Studies

23. Rival military generals called the Diadochi [dye-uh-DOH-kye] fought over this leader's empire after his death.

A. Name this man who created an empire stretching from Greece to India before dying at age 32.

answer: Alexander the Great (or Alexander III of Macedon; prompt on “Alexander”)

B. Alexander the Great conquered this empire after defeating Darius III [duh-RY-uss “the third”] at Issus [IH-suss] and Gaugamela [gaw-guh-MEE-luh]. Earlier, it invaded Greece under Darius [duh-RYE-uss] I and Xerxes [ZURK-seez] I.

answer: Persia (or First Persian Empire or Achaemenid Empire)

<368097>

TOSSUP – Miscellaneous

24. The cast of this musical sings, “You Never Say ‘Good Luck’ On Opening Night.” The combination of Roger de Bris' [duh-bree'z] directing and Franz Liebkind's [LEEB-kind'z] script lead Leo and Max to ask, “Where Did We Go Right?”. For 10 points—what musical based on a Mel Brooks film includes “Springtime for Hitler?”

answer: The Producers

<362699>

BONUS – Fine Arts

24. The philosophical work *Reason and Common Sense* notes that “Those who cannot remember the past are condemned to” do this.

A. Give the exact two English words that complete that quote.

answer: repeat it (accept Those who cannot remember the past are condemned to repeat it.)

B. This Spanish-American philosopher wrote *Reason and Common Sense*. In a “soliloquy” entitled “Tipperary,” he claimed that “only the dead have seen the end of war.”

answer: George Santayana (or Jorge Agustín Nicolás Ruiz de Santayana y Borrás)

<378212>

TOSSUP – Social Studies

25. In 1903, members of this religion were killed in Kishinev [KEE-shee-“now”] over allegations of blood libel. The Sephardim [seh-“FAR”-dim] and Ashkenazim [ahsh-kuh-NAH-zim] are the main ethnic groups of this religion, which was banned in Spain by Ferdinand and Isabella. For 10 points—name this religion whose liturgical language is Hebrew.

answer: Judaism (accept word forms; accept Jews or Jewish and similar answers)

<366998>

BONUS — Mathematics (Computation)

25. Pencil and paper ready. Evaluate these logarithmic ["log"-uh-"rhythmic"] expressions:

A. The base 4 logarithm ["log"-uh-"rhythm"] of 32

answer: $\frac{5}{2}$ or 2.50 or $2\frac{1}{2}$ [since $2^2 = 4$ and $2^5 = 32$]

B. The natural logarithm of the quantity e raised to the 4th power

answer: 4 [$\ln e^4 = 4 \times \ln e = 4 \times 1 = 4$]

<374471>



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Third Quarter

TOSSUP – Communication Arts

26. What text whose second section is “The Cow” is divided into 114 *suras* [SOO-ruz], was revealed by the angel Jibreel to Muhammad, and is the holy book of Islam?

answer: (al-)Qur'an [kuh-RAHN] (or Koran)

<378096>

TOSSUP – Social Studies

27. What state contains the mouth of the Cheyenne [ˈʃy-EN] River; Wind Cave National Park; Deadwood, where Wild Bill Hickok was shot; and Mount Rushmore?

answer: South Dakota

<365395>

TOSSUP – Fine Arts

28. What opera cycle concludes with *Twilight of the Gods*; includes *The Valkyrie* [VAL-kih-ree]; was composed by Richard Wagner [REE-kart VAHG-nur]; and is named for a gold item of jewelry?

answer: Ring cycle or The Ring of the Nibelung (or Der Ring des Nibelungen)

<368803>

TOSSUP – Miscellaneous

29. What event, which was won for the second time in 2014 by Petra Kvitova [kvee-toh-vuh], is a Grand Slam tennis tournament played on grass courts in England?

answer: Wimbledon (or The Championships, Wimbledon)

<369008>

TOSSUP – Social Studies

30. What structure, which included a crossing known as Checkpoint Charlie, was built in August 1961 and divided the capital city of East Germany?

answer: Berlin Wall (or Berliner Mauer)

<347166>

TOSSUP – Fine Arts

31. What French artist depicted a monkey on a leash in *A Sunday Afternoon on the Island of La Grande Jatte* [zhaht], one of his many pointillist [POIN-till-izt] paintings?

answer: Georges(-Pierre) Seurat [zhorzh suh-rah]

<362329>

TOSSUP – Science

32. What hydrocarbon with 18 hydrogen atoms is used to reduce engine knock, is an alkane with 8 carbons, and is used in a namesake “rating” system for fuel?

answer: octane

<372957>

TOSSUP – Mathematics

33. Goldbach's [GOLD-bahk's] conjecture involves adding pairs of what class of integers that are not composite numbers because their only factors are themselves and 1?

answer: prime numbers or primes (do not accept or prompt on “even numbers”)

<364506>

TOSSUP – Social Studies

34. England's King Edward VI [ˈthe sixth] was a member of what royal dynasty, which was founded in 1485 by Henry VII [ˈthe seventh] and also included Queen Elizabeth I?

answer: House of Tudor (or Tudor dynasty or Tudors)

<366741>

TOSSUP – Science

35. What molecule is produced in incomplete combustion, binds to hemoglobin [HEE-moh-gloh-bin] 200 times more tightly than oxygen, and is a “silent killer” with formula CO [ˈC-Oː]?

answer: carbon monoxide (accept CO before “CO”)

<370472>

TOSSUP – Mathematics (Computation)

36. Pencil and paper ready. What is the base 8 equivalent of the base 10 number 85, given that 8 squared equals 64?

answer: 125 [ˈone two fiveː] [$85 = 64 + 21 = 64 + 16 + 5 = (1 \times 64) + (2 \times 8) + (5 \times 1) = (1 \times 8^2) + (2 \times 8^1) + (5 \times 8^0) = 125_8$]

<329347>

TOSSUP – Communication Arts

37. What author, who wrote about socialite Lily Bart in *The House of Mirth*, depicted the love of Ellen Olenska and Newland Archer in *The Age of Innocence*?

answer: Edith Wharton (or Edith Newbold Jones)

<347474>

TOSSUP – Science

38. The Coma Cluster contains what objects with dark-matter haloes whose ranks include “irregulars” like the Magellanic [MAA-juh-LAA-nik] Clouds and “spirals” like Andromeda [an-DRAH-meh-duh]?

answer: galaxies (or galaxy; do not accept or prompt on “star(s)”)

<366624>

TOSSUP – Mathematics (Computation)

39. Pencil and paper ready. What product results when the complex number 6 plus $5i$ is multiplied by its conjugate of 6 minus $5i$?

answer: 61 (+ 0i) [Using FOIL, $(6 + 5i)(6 - 5i) = 36 - 30i + 30i - 25i^2 = 36 - (25 \times -1) = 36 - (-25) = 61$]

<328146>

TOSSUP – Communication Arts

40. What author wrote about the death of Eva [AY-va] St. Clare, a slave girl named Topsy, and the villainous plantation owner Simon Legree [luh-GREE] in *Uncle Tom’s Cabin*?

answer: Harriet Beecher Stowe (or Harriet Elisabeth Beecher)

<347001>



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Fourth Quarter

TOSSUP – Mathematics

41. This convex regular polytope [PAH-lee-tohp] has a Schläfli [SHLAY-flee] symbol of (4,3) [“four comma three”], meaning that each three faces meet at each vertex and each face has four sides. This polyhedron [pahl-ee-HEE-drun] has twelve edges, eight vertices [VER-tis-ees], and six faces. For 10 points—name this Platonic solid whose faces are all squares.

answer: cube

<378143>

BONUS – Communication Arts

41. This novel describes the young Cosette as having “no ungraceful feature.”

A. Name this novel that also depicts 1832’s June Rebellion.

answer: Les Misérables [lay mee-zay-rahb] (or The Miserable Ones or The Wretched Poor; do not accept “Les Miz”)

B. This French author included a lengthy discussion of the Paris sewers in *Les Misérables*.

answer: Victor (Marie) Hugo

<367651>

TOSSUP – Communication Arts

42. In one novel by this author, the title character recalls her arguments with Peter Walsh while walking to the florist. In another novel by this author, James Ramsay takes a long-delayed boat trip to the title location. For 10 points—name this author of *Mrs. Dalloway* and *To the Lighthouse*.

answer: (Adeline) Virginia Woolf (or Adeline Virginia Stephen)

<367118>

BONUS – Science

42. One of the twelve principles of this field of chemistry is that generation of byproducts should be minimized.

A. Identify this field of chemistry whose colorful name reflects its goal of designing products and processes that have little to no effect on the environment.

answer: green chemistry (accept sustainable chemistry)

B. Green chemistry promotes the use of these compounds, which increase the rate of a chemical reaction without actually being consumed in the process.

answer: catalysts [“CAT”-uh-“lists”]

<374538>

TOSSUP – Fine Arts

43. At this musical work’s debut, the program notes began, “The Earth is covered with flowers.” This ballet begins with a six-measure solo, with constantly changing meters, on the bassoon. For 10 points—name this 1913 work by Igor Stravinsky [EE-gor struh-VIN-skee] whose Paris premiere caused a riot.

answer: The Rite of Spring (: Pictures of Pagan Russia in Two Parts) or Le Sacre du printemps (or Vesna svyashchennaya)

<355131>

BONUS – Fine Arts

43. Name these musical keys:

A. This simplest major key has no flats or sharps.

answer: C major

B. This major key has a single flat, B flat. It is one step away from C major on the circle of fifths.

answer: F major

<367961>

TOSSUP – Mathematics

44. The text editor “ed,” which was created for this operating system by its developer Ken Thompson, inspired its “grep” utility. Dennis Ritchie also worked on this operating system, which was designed at Bell Labs. For 10 points—name this operating system, the basis of OS X [“O S ten”] and Linux [LIN-uks].

answer: Unix [“YOU-nicks”]

<367274>

BONUS – Communication Arts

44. This poem’s speaker noticed a “stillness in the room” when the title event occurs.

A. Name this poem in which a “blue, uncertain, stumbling buzz” appears, after which the speaker realizes that “I could not see to see.”

answer: I heard a Fly buzz—when I died

B. This reclusive author of “I heard a Fly Buzz—when I died” lamented “How dreary to be somebody!” in “I’m nobody! Who are you?”

answer: Emily (Elizabeth) Dickinson

<367689>

TOSSUP – Social Studies

45. During the Civil War, this state was the site of battles at Prairie Grove and Pea Ridge. A governor of this state, Orval Faubus [FAW-bus], tried to prevent nine black students from integrating its capital’s Central High School. For 10 points—name this home state of Mike Huckabee and Bill Clinton.

answer: Arkansas

<353869>

BONUS – Science

45. One formulation of this statement relates energy and time.

A. Name this principle stating that position and momentum cannot both be determined precisely simultaneously.

answer: Heisenberg [“HIGH”-zen-berg] uncertainty principle (accept either underlined part)

B. Heisenberg’s uncertainty principle was the subject of debates between Einstein and this scientist, who postulated that electrons orbit an atom’s nucleus in discrete energy levels.

answer: Niels (Henrik David) Bohr [neelz bor]

<367914>

TOSSUP – Science

46. Captain Cook traveled to Tahiti in 1768 to observe the transit of this object. Its atmosphere is composed mainly of carbon dioxide, with a surface pressure of about 92 bar. The closest planet in size to Earth is—for 10 points—what planet named for the Roman goddess of love?

answer: Venus

<373487>

BONUS – Social Studies

46. Name these leadership positions in Congress:

A. The holder of this position follows the vice president in the line of presidential succession and presides over the lower house of Congress.

answer: Speaker of the House (of Representatives) (or House Speaker)

B. The senior senator of the majority party is usually chosen to serve in this second-highest-ranking position in the Senate, currently held by Orrin Hatch.

answer: president pro tempore

<368071>

TOSSUP – Communication Arts

47. This building has one elevator that can only go up and another that can only go down. It was built to be 30 stories high, but lacks a 19th floor. Mrs. Jewls and Principal Kidswatter work in this building. Louis Sachar [“sacker”] created—for 10 points—what “Sideways” educational institution?

answer: Wayside School (accept Sideways Stories from Wayside School or Wayside School is Falling Down or Wayside School Gets a Little Stranger)

<374026>

BONUS — Mathematics

47. Matrix A is 5 by 3. What are the dimensions of matrix B if . . .

A. Matrix A times matrix B is a square matrix?

answer: 3 (rows) by 5 (columns) (accept 5 columns by 3 rows; do not accept or prompt on "5 by 3")

B. Matrix B is the augmented matrix of A that is used to solve a system of linear equations?

answer: 5 (rows) by 4 (columns) (accept 4 columns by 5 rows; do not accept or prompt on "4 by 5")

<378184>

TOSSUP — Social Studies

48. In 1797, this city's ruler, Ludovico Manin [loo-doh-VEE-koh mah-NEEN], was deposed. Manin was the last of a series of officials that included Enrico Dandolo; those men, who ruled this city for over 1,000 years, were known as doges [DOH-juz]. For 10 points—name this northern Italian city known for its canals.

answer: Venice (or Venezia)

<345356>

BONUS — Miscellaneous

48. This performer's TBS reality show *The Good Life* was cancelled in September 2014 after he tweeted about a rape accusation.

A. Name this member of Goodie Mob and Gnarlz [nahrlz] Barkley who performed the hit "Forget You."

answer: CeeLo [SEE-loh] Green (or Thomas DeCarlo Callaway; accept any underlined name; accept CeeLo Green's The Good Life)

B. CeeLo's most prominent TV work was the four seasons he spent as a coach on this NBC singing competition.

answer: The Voice

<374419>

TOSSUP — Science

49. This element's namesake "economy" is a possible alternative to fossil fuels. This element feels a dipole-dipole attraction to electronegative atoms in its namesake "bonds." A reaction between its two heavy isotopes ["EYE"-suh-tohpz] powers a namesake nuclear bomb. For 10 points—name this lightest element.

answer: hydrogen (accept hydrogen economy or hydrogen bonds or hydrogen bombs; prompt on "H-bomb(s)")

<373963>

BONUS — Social Studies

49. Name these men who served in the George W. Bush administration:

A. This man was Bush's vice president. His daughter Liz briefly challenged Wyoming senator Mike Enzi.

answer: (Richard Bruce) Dick Cheney

B. This man preceded Condoleezza Rice as Bush's secretary of state. He was chairman of the Joint Chiefs of Staff during the presidency of Bush's father.

answer: Colin (Luther) Powell

<367822>

TOSSUP — Miscellaneous

50. Breeds of this animal include the black-headed Suffolk and one indigenous to the Faroe [FAY-roh] Islands. These animals were successfully introduced to the Australian outback in 1797. A bellwether, or castrated ram, traditionally leads a flock of—for 10 points—what livestock that produce wool?

answer: sheep (or Ovis aries)

<378257>

BONUS – Mathematics (Computation)

50. Pencil and paper ready. In a certain country, 1 gold coin is worth 6 silver coins, while 1 silver coin is worth 5 bronze coins.

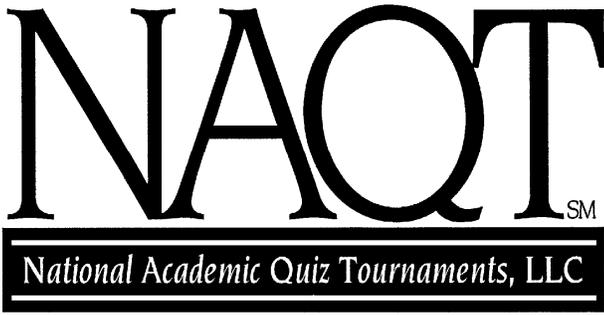
A. If Yolanda purchases a toy that costs 13 bronze coins, and pays for it with a gold coin, how many bronze coins should she receive as change?

answer: 17 bronze coins [A gold coin is worth $6 \times 5 = 30$ bronze coins, so she should receive $30 - 13 = 17$ bronze coins as change.]

B. If a gold coin, silver coin, and bronze coin are placed into a bag, and then a single coin is randomly drawn, what is the expected value of the coin expressed in terms of bronze coins?

answer: 12 bronze coins [The gold coin is worth 30 bronze coins, and the silver coin is worth 5 bronze coins, so the total value of the collection is $30 + 5 + 1 = 36$ bronze coins, and the average value of the 3 coins is $36/3 = 12$ bronze coins.]

<378054>



2014-15 MSHSAA Districts
Packet 1

Replacements

TOSSUP – Science

51. What degenerative disease is caused by too many CAG ["C-A-G"] repeats and is sometimes called a "chorea" ["core"-EE-uh] because of the dancelike, writhing motions it causes?

answer: Huntington(’s) disease or Huntington(’s) chorea

<366703>

BONUS – Mathematics (Computation)

51. Pencil and paper ready. Esmerelda rolls two, standard six-sided dice.

A. What is the probability that *dividing* the outcomes by each other will produce a quotient of 1?

answer: 1/6 or 1 in 6 [A quotient of 1 means that the dice show the same value (e.g., she rolled "doubles"). This has a 1 in 6 chance of occurring since, regardless of the value of the first die, the second die has a 1 in 6 chance of matching it.]

B. All or nothing—what are the two sums that each have a 5 in 36 chance of occurring?

answer: 6 and 8 (accept either order) [A sum of 6 can be created in 5 ways ((1, 5), (2, 4), (3, 3), (4, 2), (5, 1)), while a sum of 8 also has 5 ways of occurring ((2, 6), (3, 5), (4, 4), (5, 3), (6, 2)), and there are $6 \times 6 = 36$ total possible outcomes.]

<378221>

TOSSUP – Miscellaneous

52. Which actor won an Oscar for playing AIDS medication smuggler Ron Woodroof in *Dallas Buyers Club* and starred as the astronaut Cooper in *Interstellar*?

answer: Matthew McConaughey [mih-KAHN-uh-hay]

<372549>

BONUS – Science

52. These evergreen gymnosperms [JIM-nuh-sperms], which include spruces and firs, are named for their spiky reproductive structures.

A. Name these trees of division Pinophyta [PIN-uh-FYE-tuh].

answer: conifers [KAHN-ih-furs] (or Coniferae)

B. Conifers are the dominant plants in this biome that covers much of Russia, Canada, and Alaska. Though thickly forested, its temperatures can be comparable to those in the tundra.

answer: taiga(s) [TYE-guh] or boreal forests (prompt on "boreal" [BOR-ee-ul])

<374285>

TOSSUP – Mathematics (Computation)

53. Pencil and paper ready. By what percentage does a sphere's surface area increase if its radius is increased by 40%?

answer: 96% (do not accept "196%" or "0.96") [$SA = 4 \times \pi \times r^2$, so increasing the radius by 40% will cause a $(1.4)^2 = 1.96 = 96\%$ increase in the surface area.]

<325704>

BONUS – Communication Arts

53. In a 1956 novel, two of these dogs use the "Twilight Barking" to find their missing puppies.

A. Name this breed of dog whose fur is coveted by the owner of Hell Hall.

answer: dalmatians (accept The Hundred and One Dalmatians)

B. This villain of *The Hundred and One Dalmatians* sleeps on ermine bed sheets.

answer: Cruella de Vil (accept either underlined name)

<367991>

TOSSUP – Social Studies

54. What African nation, whose city of Saint-Louis [san-loo-ee] is near the mouth of its namesake river, surrounds The Gambia [GAM-bee-uh] and has its capital at Dakar [dah-KAR]?

answer: (Republic of) Senegal [SEH-nuh-gah] (or République du Sénégal)

<36234>

BONUS – Fine Arts

54. The “Sala de los Mocárabes” [SAH-lah day lohss moh-KAR-ah-bayz] is known for its stalactite [staa-LAK-“tight”]-like vaulting.

A. That hall is contained within this fortress that also includes a Moorish “Watch Tower” and the Palace of Charles V [“the fifth”].

answer: Alhambra [al-AHM-brah]

B. The Alhambra is in Granada [gruh-NAH-duh], a city in this European country also home to the Great Mosque of Córdoba [KOR-duh-buh].

answer: (Kingdom of) Spain (or Reino de España)

<367837>

TOSSUP – Communication Arts

55. What poetic form, which was used for a verse about a crow landing on a withered branch by Basho [BAH-shoh], is a Japanese form traditionally using 17 syllables?

answer: haiku [“hi”-koo] (accept hokku)

<366800>

BONUS – Miscellaneous

55. Name these processes used in metalwork:

A. This is the creation of objects by pouring molten metal into a mold, then letting it harden. The lost-wax process used by sculptors is one example of it.

answer: casting

B. This is the joining of two metal objects by melting a namesake filler metal into their joint; for hobbyist projects, the heat is provided by a namesake “iron.”

answer: soldering [SAH-dur-ing] (accept soldering iron)

<378267>

TOSSUP – Fine Arts

56. What composer of the *Liebeslieder* [LEE-bess-“leader”] *Waltzes* and the *Alto Rhapsody* used texts from the Luther Bible in *A German Requiem* [REK-wee-um] and wrote a namesake “lullaby?”

answer: Johannes Brahms (accept Brahms's Lullaby)

<362681>

BONUS – Social Studies

56. Answer these questions about Arizona Republicans:

A. Outgoing governor Jan Brewer was named in a lawsuit over her attempted expansion of this program that provides health insurance to low-income individuals.

answer: Medicaid (do not accept or prompt on “Medicare”)

B. After Republicans won a Senate majority in 2014, this Arizona senator was appointed chair of the Senate Armed Services Committee. He lost the 2008 election to Barack Obama.

answer: John (Sidney) McCain (III)

<374306>