

Froshmore Math

Round One

Read only for Round One

Officials Checklist and reminders:

- 1.) Review this checklist and reminders document and the rules flow chart. _____
- 2.) Pencils and fresh scratch paper for each participant _____
- 3.) Timer instructions _____
- 4.) Identify the head coach for each team. _____
- 5.) Identify the team captain. _____
- 6.) Review the pumpernickel rule _____

Accept only the answer to the bonus question that comes from the captain.

The captain may defer to another team member to give the answer to the bonus question.

If you want them to indicate a deferral in a specific way – tell them at the beginning of the match. “If you are going to defer on a bonus question, please do so by”

Coaches may use an ipad or table to keep score (I've sent out an excel score sheet) They may not use their ipad, phone or other technology to look up answers, send or received text messages or emails or to make calls during competition.

Before you begin, remind students that on a toss-up question they must buzz-in and be recognized before giving the answer and that they may NOT confer on a toss-up. You may only confer on a bonus question.”

When you read a toss-up question – identify the subject, then read the question.

If the team member buzzes-in before the question is completed and the answer is incorrect, say ‘incorrect, I will finish the question’ then finish reading the question.

If you have finished reading the question when the first team buzzes-in and gives an incorrect response say ‘incorrect,’ look at the second team call them by team name and say ‘_____ I have finished the question’

If the time has expired, their response should be to immediately buzz-in to be recognized. If there is still time (5 seconds for a regular question 15 on a math computation) they have the remaining time to buzz. If the toss-up question is not answered correctly by either team, give the correct answer. Do NOT read the bonus question, go on to the next toss-up. **If you need a replacement question for this subject, you may use the unused bonus.**

The first time you read a bonus question for each team say ‘Here is your bonus question, you do not need to buzz-in. Remember you may confer on this question, and I will take the answer from the team captain.’

There is NOT a penalty for buzzing during a bonus question.

When the time for conferring has expired (10 seconds – 15 on math or science computation) **call for the answer.** Say, ‘Captain?’ or ‘answer please’ (or something similar). If they do not give you an immediate answer say ‘time’ and give the correct answer.

There is no limit to the number of team members a team substitutes.

On a toss-up question, do not give the correct response until you have given both teams an opportunity to answer the question.

Leading articles such as "the," "an," and "a" are not required (e.g., Tale of Two Cities is an acceptable answer for The Tale of Two Cities). However, if an article is given, it must be the correct one.

Plural/Singular answers are acceptable unless otherwise delineated.

Last names are acceptable, except where there is more than one common person in the same field. Prompt for more information by saying – ‘more’ or ‘more specific’.

Questions requiring additional computation time (15 seconds) have computation in the subject line - MATH COMPUTATION: or SCIENCE COMPUTATION: or BONUS

COMPUTATION: (If it needs it and we forgot it, add it!)

Math or Science questions that do not require computation and receive regular question time (5 for toss-up and 10 for bonus) do not have computation in the subject line - MATH: or SCIENCE: or BONUS

Explain the addition of the word Computation to the timer and the team at the beginning of the tournament. After the first question containing COMPUTATION: You may choose to say only Computation if you wish.

Give your stall count before the game starts. A stall count is the amount of time allowed for the student to begin their answer once you've called on them. "My stall count is _ _ _." Fill in the blanks with your count. Do you count 1, 2, stall? 1, 2, 3, stall? Do you say stall on the upbeat of the 3rd second or the downbeat? My preference is you count 1(1001), 2(1002), 3(1003) with stall being called on the downbeat of 3. (Down beat being the end of the 1003 with 100stall. You do not have to say the 1000 or the second 1, 2 or 3 out loud. You do need to make some type of physical indication - head nod, hand count (like a basketball referee counting the backcourt) even a foot tap. But do something so the student can see the seconds slipping away. This also helps with consistency. Neither team can say the other team received more time before a stall was called. When an immediate answer is expected 1 second is adequate time to allow before a stall is called.

"Welcome to Round One of the tournament. I am _____, your moderator. (if you have a judge, timer and scorekeeper, introduce them as well) Our two teams are _____ and _____. Head coaches, will you please stand. A protest may be lodged only by the head coach." (run a buzzer check) "Students, remember, you may not give an answer until you are recognized. If you do so, it will be ruled as an incorrect response, even if your answer is correct. Explain the timing for Math or Science Computation: (see instructions) Good sportsmanship is expected from **all** players, substitutes, coaches, spectators and parents. Except for using the excel spreadsheet to keep score, you may not use computers, smart phones, iPad, etc. during the competition. Turn off all and put away all electronics at this time. Remember a player will be removed for the remainder of the game if any device is found at the table. (pause) Are there any questions? Let's begin."

- _____ 1. MATH: What is the term for an angle made up of two radii with its vertex at the center of the circle?

ANSWER: **Central** (angle)

BONUS BONUS: What is the term for two lines that are non-coplanar?

ANSWER: **Skew** (lines)

- _____ 2. FINE ARTS: **Works by this painter were used as inspiration for the music video for R.E.M.'s "Losing My Religion," including his Saint Francis of Assisi in Ecstasy. This artist of * Judith Beheading Holofernes also depicted a biblical scene featuring a tax collector. The Calling of Saint Matthew is a work by what Italian master of chiaroscuro?**

ANSWER: (Michelangelo Merisi da) **Caravaggio** [do NOT accept or prompt on Michelangelo]

BONUS BONUS: What other work by Caravaggio depicts a character from Greek mythology staring at his own reflection?

ANSWER: **Narcissus**

- _____ 3. MATH COMPUTATION: What is the cosine of 120 degrees?

ANSWER: **-1/2** [negative one-half]

BONUS BONUS COMPUTATION: If the cosine of an acute angle in a right triangle is 5/13, what is the sine of that same angle in that same triangle?

ANSWER: **12/13**

- _____ 4. POP/CE: **This country became the first to introduce a six-day workweek.* Businesses now have the option to require 48 hour workweeks. Name the European country made up of thousands of islands throughout the Aegean and Ionian Seas.**

ANSWER: **Greece**

BONUS BONUS: How many hours are in the American workweek?

ANSWER: **40**

- _____ 5. MATH COMPUTATION: How many dozens of an item are there in five gross of the item?

ANSWER: **60**

BONUS BONUS COMPUTATION: If the five gross of items cost \$72, how much does one item cost?

ANSWER: **\$.10** (ten cents)

- _____ 6. SOCIAL STUDIES: A member of this family gained fame during the War of 1812 for winning the Battle of Lake Erie. Another member of this family forced the signing of the Treaty of Kanagawa with the * Japanese Shogun. What is this family, whose members include Matthew and Oliver Hazard?

ANSWER: **Perry**

- BONUS BONUS: What man, the last president to come from the Whig Party, ordered the Perry Expedition to Japan?

ANSWER: (Millard) **Fillmore**

END OF FIRST QUARTER

The score at the end of the first quarter is

Team one _____ Team two _____

Are there any questions?

(pause and look at the coaches if there are no protests proceed)

"Coaches... you may substitute if you wish.

- _____ 7. SCIENCE Atmosphere refers to the air around the Earth and hydrosphere refers to the water on the Earth. Which sphere refers to the entire solid earth realm and is composed of mineral matter?

ANSWER: lithosphere

- BONUS BONUS Of the remaining spheres of Earth, which sphere refers to the ice on Earth, which covers about 13% of the Earth's surface?

ANSWER: cryosphere

- _____ 8. MATH COMPUTATION: The Music Store sold a saxophone for \$480 which was sold with a 20% discount. What was the original price of the saxophone

ANSWER: **\$600**

- BONUS BONUS COMPUTATION: The Music Store bought a grand piano for \$5200. They want to make a profit of 15% on the sale of this piano. What should the price of the piano be?

ANSWER: **\$5980**

- _____ 9. HUMANITIES: This man argued in one work for a less "Carthaginian" peace settlement following World War I. That work by this man is his * *The Economic Consequences of the Peace*. Who is this British economist who helped establish the postwar economic order at the Bretton Woods Conference?

ANSWER: (John Maynard) **Keynes** [pronounced Kanes]

- BONUS BONUS: What Austrian economist of *The Road to Serfdom* criticized Keynes's views in favor of deficit spending?

ANSWER: (Friedrich) **Hayek**

- ____ 10. SOCIAL STUDIES: The Hussite Wars were sparked by an event in this city, which was later repeated to begin the Thirty Years War. Alexander Dubcek led a “Spring” * named for this city which sought, “Socialism with a human face.” What is this city, the capital of the Czech Republic?

ANSWER: Prague

- BONUS BONUS: The events which started the Hussite Wars and Thirty Years War were named for what action, in which a person is thrown out of a window?

ANSWER: Defenestration

- ____ 11. MATH COMPUTATION: Take the number of persons in the U.S. House of Representative, add the number of U.S. Senators and then add the number of U.S. Supreme Court Justices. What is the sum?

ANSWER: **544** [$435 + 100 + 9 = 544$]

- BONUS BONUS COMPUTATION: Take the number of minimum number of electoral votes it takes to win the presidency times the number of states that border the Pacific Ocean. What is the product?

ANSWER: **1350** [$270 \times 5 = 1350$] CA, WA, OR, HI, AK]

- ____ 12. SCIENCE This type of volcano is exemplified by mountains such as Mt. Fuji and Mount St. Helens. What is this type of volcano which is composed of lava flows and pyroclastic material and which is steep-sided and very tall?

ANSWER: composite or stratovolcano

- BONUS BONUS Volcanoes of this type are some of the largest volcanoes in the world. These volcanoes are built out of fluid lava flows. What is this type of volcano, of which Mauna Loa, on Hawai'i, is the largest at 28,000 feet above the ocean floor?

ANSWER: shield

END OF FIRST HALF
The score at the end of the first half is
Team one _____ Team two _____
Are there any questions?
(pause and look at the coaches if there are no protests proceed)
"Coaches... you may substitute if you wish.

- ____ 13. LITERATURE: This English writer was troubled by mental illness* all her life. She wrote essays on artistic theory and literary history. Name the woman best known for her novels *Mrs. Dalloway* and *To the Lighthouse*.

ANSWER: Virginia Woolf

- BONUS BONUS: Woolf was famous for this writing style. What is it called when a person records their thoughts as a continuous flow?

ANSWER: stream of consciousness

_____ 14. MATH: What regular polygon is the face of every Tetrahedron?

ANSWER: (Equilateral) **Triangle**

BONUS BONUS: What is the name of a polyhedron with 20 faces that are all equilateral triangles?

ANSWER: **Icosahedron** [eye cose uh HE drun]

_____ 15. SOCIAL STUDIES: **This man said, “Missed me,” after a balloon popped at a speech 6 years after this man survived an assassination attempt. This man’s re-election campaign featured the “Morning in America” ad, and led to this man winning * 49 states against Walter Mondale.** Who is this man, who was first elected president in 1980?

ANSWER: (Ronald) **Reagan**

BONUS BONUS: Reagan is one of only 2 presidents to win 49 states. What other Republican president won 49 states, doing so in 1972 against George McGovern?

ANSWER: (Richard) **Nixon**

_____ 16. MATH COMPUTATION: What is the probability, as a fraction in lowest terms, of rolling two dice and obtaining a three?

ANSWER: **1/18** [Two over thirty-six = 1/18]

BONUS BONUS COMPUTATION: Playing with a standard deck of 52 cards, what is the probability, as a fraction in lowest terms, of drawing a face card? A face card contains either a queen, king, or jack in each suit.

ANSWER: **3/13**

_____ 17. SCIENCE CALCULATION If you have a 2.45 mole sample of carbon dioxide, CO₂, how many moles of oxygen atoms do you have?

ANSWER: 4.90 (moles)

BONUS BONUS SCIENCE CALCULATION If you have 7.25 moles of glucose, C₆H₁₂O₆, how many moles of oxygen do you have?

ANSWER: 43.5 (moles)

_____ 18. MATH COMPUTATION: What is the slope of a line with the equation 4x – 6y = 12?

ANSWER: **2/3**

BONUS BONUS COMPUTATION: What is the slope of a line perpendicular to the line 5x + 15y = 10?

ANSWER: **3**

END OF THIRD QUARTER

The score at the end of the third quarter is

Team one _____ Team two _____

Are there any questions?

(pause and look at the coaches if there are no protests proceed)

"Coaches... you may substitute if you wish

- ____ 19. POP/CE: **The center fielder known as the greatest all-around baseball player died*** in 2024. The man who was nicknamed “The Say Hey Kid” had a pro baseball career that spanned four decades. Name the Hall of Famer who played for the San Francisco Giants.

ANSWER: **Willie Mays**

- BONUS BONUS: Mays took a break from major league baseball to serve two years in the Army in 1954 during which war?

ANSWER: **Korean War**

- ____ 20. SOCIAL STUDIES: **This empire faced the first major rebellion of African slaves in the Zanj Rebellion. This empire was established at the Battle of the Great Zab River, and its leader Harun al-Rashid established the * Baghdad House of Wisdom.** What is this Islamic Caliphate, which succeeded the Umayyads?

ANSWER: **Abbasid** (Caliphate) [or Abbasid Empire]

- BONUS BONUS: The Abbasid capital at Baghdad was destroyed by the Ilkhanate, an offshoot of what empire established by Genghis Khan?

ANSWER: **Mongol** (Empire)

- ____ 21. MATH COMPUTATION: Jan left her house at 10:53 am and jogged for an hour and eighteen minutes. At what time did she end her jog?

ANSWER: **12:11 pm**

- BONUS BONUS COMPUTATION: Jan is taking medication every three hours and twenty minutes. If she takes the first pill at 8:10 am, at what time will she take the fourth pill?

ANSWER: **6:10 pm**

- ____ 22. FINE ARTS: **This composer's Requiem in D Minor is denoted K. 626 in the Kochel catalog of this composer's works. The Queen of the Night is a character in an opera by this composer, * The Magic Flute. Così fan Tutte and Don Giovanni are operas by what Austrian composer, who first gained fame as a child prodigy?**

ANSWER: (Wolfgang Amadeus) **Mozart**

- BONUS BONUS: What Polish composer wrote variations on “La ci darem la mano” from Mozart’s *Don Giovanni*? He also wrote the *Revolutionary Etude*.

ANSWER: (Frederic) **Chopin**

- _____ 23. SCIENCE CALCULATION Gravitational potential energy is equal to the height of the object times acceleration due to gravity. Using 10 meters per second squared as the gravitational constant, how much potential energy, in Joules, does a 5 kilogram cat have when it is sitting at the top of a 2 meter tall bookcase?

ANSWER: 100 (J)

- BONUS BONUS CALCULATION Kinetic energy is equal to the mass, in kilograms, of the object times its velocity squared. If a 2,500 gram cat launches at you moving 4.0 meters per second, what is the kinetic energy, in Joules, of the object in Newtons?

ANSWER: 40 (J)

- _____ 24. MATH COMPUTATION: How many days in score with five leap years included?

ANSWER: 7,305 [$365 \times 20 + 5 = 7305$]

- BONUS BONUS COMPUTATION: How many decades are there in a quicentennial?

ANSWER: 50 [quicentennial = 500 years / 10 = 50]

END OF GAME

The score at the end of the game is

Team one _____

Team two _____

If there is a tie allow for substitution before you ask the tie-breaker questions. Read all 5 to determine the winner.

Tie Breakers

MATH COMPUTATION: What are the factors of $25n^2 - 289$?

ANSWER: $(5n + 17)(5n - 17)$ (or reversed order)

[May say five n plus seventeen times five n minus seventeen OR five n minus seventeen times five n plus 17]

MATH COMPUTATION: How many sides does a regular polygon have if each exterior angle is 40 degrees?

ANSWER: 9

MATH COMPUTATION: Two secant lines intersect outside a circle. What is the measure in degrees of the acute angle formed if the two intercepted arcs are 120 degrees and 50 degrees?

ANSWER: 35 (degrees)

MATH COMPUTATION: Simplify the expression $8x^3y^{12}$ times $3x^{11}y^5$.

[READ eight x cubed, y to the 12th times three x to the 11th, y to the fifth]

ANSWER: $24x^{14}y^{15}$ [twenty-four X to the fourteenth (power), Y to the fifteenth (power)]

MATH COMPUTATION: Convert $11\pi/18$ radians into degrees.

ANSWER: 110 (degrees)

*Are there any questions? (pause and look at the coaches if there are no protests proceed)
This ends the game. "*