

Froshmore Math

# Round Two

Read only for Round Two

## **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 Two 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 COMPUTATION: The legs of a right triangle are 15 and 20 inches long. How long, in inches, is the length of the hypotenuse of this right triangle?

ANSWER: **25** (inches)

- BONUS BONUS COMPUTATION: The cities of TriCity, Hypoville, and GeoTown form a right triangle with the right angle at Hypoville. The distance from TriCity to Geotown is 500 miles. It's 480 miles from GeoTown to Hypoville. How far is it from TriCity to Hypoville in miles?

ANSWER: **140** (miles) [right triangle: 500,480,140 which is 25,24,7 triple x 20]

- \_\_\_\_\_ 2. SOCIAL STUDIES: **The eastern side of this structure was the site of a “death strip” which followed the Luisenstadt Canal. The mural *May God Help me to Survive this Deadly Love* was painted on this structure and shows** \* Leonid Brezhnev kissing Erich Honecker. What is this structure that separated the Eastern and Western sections of a German city?

ANSWER: **Berlin Wall**

- BONUS BONUS: German teenager Peter Fechter was killed near what famous crossing point on the Berlin Wall?

ANSWER: **Checkpoint Charlie** [also accept Checkpoint C]

- \_\_\_\_\_ 3. MATH COMPUTATION: Divide  $7 \frac{1}{4}$  [seven and one-fourth] by  $\frac{5}{8}$  [five-eighths] and give answer as a mixed number in simplest form.

ANSWER: **11  $\frac{3}{5}$**  [eleven and three-fifths]

- BONUS BONUS COMPUTATION: Subtract  $5 \frac{2}{3}$  [five and two-thirds] from  $10 \frac{1}{6}$  [ten and one-sixth] Leave answer as a mixed number in simplest form.

ANSWER: **4  $\frac{1}{2}$**  [four and one-half]

- \_\_\_\_\_ 4. SCIENCE **This type of reaction is the result of a larger substance or substances breaking down** into smaller substances. What is this type of reaction that is also a description for what happens when living things die?

ANSWER: decomposition

- BONUS BONUS SCIENCE CALCULATION: Balance the following decomposition reaction. \_\_\_\_\_  $C_6H_{12}O_6$  + \_\_\_\_\_  $O_2$   $\rightarrow$  \_\_\_\_\_  $H_2O$  + \_\_\_\_\_  $CO_2$ . (read: C six H twelve O six plus O 2 yields H two O + C O two)

ANSWER: 1, 6, 6, 6

- \_\_\_\_ 5. FINE ARTS: A 1963 experimental film by Andy Warhol titled for this action shows various groups performing this action for 3 and a half minutes each. This action titles sculptures by Constantin Brancusi and \* Auguste Rodin. What is this action, which also titles a painting of two lovers performing the title action by Gustav Klimt?

ANSWER: (The) Kiss [accept any word forms like kissing or being kissed]

- BONUS BONUS: *The Kiss* is also the title of a work by what Norwegian painter as part of his *Frieze of Life* series?

ANSWER: (Edvard) Munch [pronounced Moonk]

- \_\_\_\_ 6. MATH COMPUTATION: The odds that the Thunder will beat the Lakers is 5 to 3. What is the probability, as a percent, that the Thunder lose to the Lakers?

ANSWER: **37.5 (%)**

- BONUS BONUS COMPUTATION: If the odds that the Thunder will win any basketball game they play are five to three, how many games, to the nearest whole number, would they win if they play 82 games?

ANSWER: **51**

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. SOCIAL STUDIES: A hero of what is now this country won the Siege of Kruje and is named Skanderbeg. A communist leader of this country built over 750,000 bunkers and \* allied his country with Maoist China. Enver Hoxha was a leader of what country, governed from Tirana?

ANSWER: Albania

- BONUS BONUS: Skanderbeg's victory at Kruje was won over what empire led by Mehmed the Conqueror?

ANSWER: Ottoman (Empire)

- \_\_\_\_ 8. MATH: What D term completes this Geometry definition: The longest chord of a circle is the ?

ANSWER: **Diameter**

- BONUS BONUS: What two words are defined as multiplying the means and the extremes in a proportion and setting them equal?

ANSWER: **Cross Product**

- \_\_\_\_\_ 9. POP/CE: This Canadian actor died in 2024 after a long career\* in both TV and film. He famously played Hawkeye Pierce in the film version of MASH. Name the man who more recently played President Snow in the *Hunger Games* films.

**ANSWER: Donald Sutherland**

BONUS BONUS: Who wrote the *Hunger Games* novels?

**ANSWER: Suzanne Collins**

- \_\_\_\_\_ 10. FINE ARTS: A work by this artist depicts dozens of men floating in the air dressed in overcoats and bowler hats and is called *Golconda*. Another work by this artist of *Time \* Transfixed* features a painting of a pipe above the words, "This is not a pipe." *The Treachery of Images* is a painting by what Belgian surrealist?

**ANSWER: (Rene) Magritte**

BONUS BONUS: What other work by Magritte shows a man in an overcoat and a bowler hat with his face obscured by a flying apple and gets its title from a phrase used in the gospels to describe Jesus?

**ANSWER: The Son of Man**

- \_\_\_\_\_ 11. MATH COMPUTATION: Simplify by adding like radicals:  $\sqrt{12} + \sqrt{27}$  [READ square root of 12 plus square root of 27]  
Leave answer in simplest radical form.

**ANSWER:  $5\sqrt{3}$**  [Five square root of three OR seven radical three]

BONUS BONUS COMPUTATION: Simplify by adding like radicals:  $3\sqrt{125} + 3\sqrt{1715}$   
[say cube root of 125 plus cube root of 1715]  
Leave answer in simplest radical form.

**ANSWER:  $12\sqrt[3]{5}$**  [twelve cube root of five or twelve times the cube root of five; NOT twelve radical five]

- \_\_\_\_\_ 12. SCIENCE CALCULATION A car travels a distance of 200 meters in 45.0 seconds. What is the average speed of this car in meters per second? Provide your answer to the correct number of significant digits.

**ANSWER: 4.4 m/s (4.44 round to two significant digits)**

BONUS BONUS CALCULATION: If that same car accelerates uniformly from rest to reach a speed of 20.0 meters per second in 15.0 seconds, what is the average acceleration in meters per second squared with the correct number of significant digits?

**ANSWER: 1.33 m/s<sup>2</sup>**

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. SOCIAL STUDIES: Arab historian Ibn Fadlan called a group of these people, “The filthiest of god’s creatures” upon visiting their settlement in the Rus. A group of these people perpetrated the \* Lindisfarne Raid. What name is given to this group of marauding Scandinavians?

ANSWER: Vikings [accept Scandinavians before the question ends]

- BONUS BONUS: The Viking Age is normally said to have ended following what battle in which Harald Hardrada was killed during his invasion of England?

ANSWER: (Battle of) Stamford Bridge

- \_\_\_\_\_ 14. LITERATURE: This 1925 novel is set in the Jazz Age on Long Island.\* Midwesterner Nick Carraway is lured into the lavish world of his neighbor. Name this classic novel by F. Scott Fitzgerald.

ANSWER: The Great Gatsby

- BONUS BONUS: What is Nick’s neighbor, the title character’s, full name?

ANSWER: Jay Gatsby (real name James Gatz also acceptable)

- \_\_\_\_\_ 15. MATH COMPUTATION: What is the area, in square inches, of a triangle with a base of 2 feet and an altitude of 10 inches?

ANSWER: **120** (square inches)

- BONUS BONUS COMPUTATION: What is the area, in square meters, of a regular hexagon with an apothem of 3.4 meters and a side of 4 meters?

ANSWER: **40.8** (square m)

- \_\_\_\_\_ 16. SCIENCE This “ology” is the study of tumors. What is this medical speciality that begins with the letter “o”?

ANSWER: oncology

- BONUS BONUS: This “ology” is the subset of zoology that studies insects. What is this field that begins with the letter “e”?

ANSWER: entomology

- \_\_\_\_\_ 17. POP/CE: NASA is rethinking its plans for placing the first astronauts on Mars because of potential damage to this human organ.\* Researchers found that long-distance space travel lead to permanent damage to this organ found in the urinary system. Name the organ that filters blood and removes waste and extra water.

ANSWER: kidneys

- BONUS BONUS: The study analyzed 40 space missions involving humans and which animal?

ANSWER: mice

\_\_\_\_ 18. MATH COMPUTATION: Write forty-three trillion in correct scientific notation.

ANSWER:  **$4.3 \times 10^{13}$**  [four point three times 10 to the 13<sup>th</sup> (power)]

BONUS BONUS COMPUTATION: Give the correct scientific notation for 453 millionths.

ANSWER:  **$4.53 \times 10^{-4}$**  [four point five three times ten to the negative four (power)]

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. SOCIAL STUDIES: A resistance movement against this regime was commanded to action by the poem, "Autumn Song." Another resistance group against this regime was the White \* Rose led by Sophie Scholl. What is this regime, led by Adolf Hitler?

ANSWER: Nazi (Germany) [also accept National-Socialist or NSDAP; do NOT accept or prompt on more general answers like Fascism or Totalitarianism]

BONUS BONUS: The French resistance to the Nazis maintained loyalty to Free France, which was led by what general, who became the president of France following the end of World War II?

ANSWER: (Charles) de Gaulle

\_\_\_\_ 20. MATH COMPUTATION: How many ounces is equal to 16.5 pounds?

ANSWER: **264** (ounces)

BONUS BONUS COMPUTATION: How many acres are in 12 square miles?

ANSWER: **7680** (acres)

\_\_\_\_ 21. HUMANITIES: Zhu Bajie is one of these animals in *Journey to the West*. Examples of these animals in George Orwell's *Animal Farm* include, Old Major, Snowball and \* Napoleon. What are these animals, another example of which is Wilbur in *Charlotte's Web*?

ANSWER: Pigs [or Swine]

BONUS BONUS: Pigs named Gouger, Snouter, Rooter, and Tusker pull the Hogfather's sleigh in the *Discworld* series by what British science fiction writer?

ANSWER: (Sir Terry) Pratchett

\_\_\_\_ 22. MATH: What is the M term that is the middle number of a given set of data?

ANSWER: **Median**

BONUS BONUS COMPUTATION: Which of the three M statistical terms is most affected by an outlier in the data?

ANSWER: **Mean**

- \_\_\_\_\_ 23. SCIENCE This molecule, originally discovered in 1869 by Swiss scientist Friedrich Miescher, is typically credited to Watson and Crick's work from the 1950s. Name this molecule which contains the instructions for cellular functions.

ANSWER: deoxyribonucleic acid or DNA

- BONUS BONUS: The 1950s work of Watson and Crick regarding the structure of DNA is actually based on the X-ray crystallography of this female scientist.

ANSWER: Rosalind Franklin

- \_\_\_\_\_ 24. MATH COMPUTATION: The volume of a cube is 125 cubic feet. What is the surface area of the same cube in square feet?

ANSWER: **150** (square feet)

- BONUS BONUS COMPUTATION: The surface area of a sphere is  $36\pi$  square meters. In terms of pi and cubic meters, what is the volume of this sphere?

ANSWER: **36** ( $\pi \text{ cm}^3$ )

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: Two parallel lines are cut by a transversal. What term is used for the two consecutive interior angles?

ANSWER: **Supplementary**

MATH COMPUTATION: What is the permutation of seven objects taken three at a time?

ANSWER: **210** [ $7 \times 6 \times 5 = 210$ ]

MATH COMPUTATION: Find the value of x: Two complementary angles have measures of  $2x + 10$  and  $7x - 1$ .

ANSWER: **9**

MATH COMPUTATION: What is the value of tangent of 135 degrees?

ANSWER: **1**

MATH COMPUTATION: How many seconds in 8 hours?

ANSWER: **28,800** (seconds)

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