

2022 Grissom Math Tournament

Algebra I : 3 – 4 – 5 Team Contest

Sample Round

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1. Evaluate: $2(16 - 9)^2 - 111/3$	2. How many multiples of 5 are there between 144 and 961?
3. Given a cube with edge = 11 inches, let A = the number of cubic inches in the volume of the cube and B = the number of square inches in the surface area of the same cube, what is the value of A – B?	4. Solve for x: $\frac{x+3}{4} - \frac{x+1}{5} = 2$
5. How many distinct arrangements are there of the letters in the word: ALGEBRA ?	

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Round 1

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Round 1

Round 1:

1. Evaluate: $(7 - 5(10 - (-2)^2)) + 2022$	2. What is the digit in the unit's place of: $2021^{2022} - 2022^{2021}$
3. Solve for x : $ x + 3 = 5 + x$	4. Find the value of $a + b$ if the points $(a, 0)$ and $(0, b)$ are the x - and y - intercepts of the line: $y = \frac{3}{2}x - \frac{14}{3}$
5. James and John ride together back and forth to school this week. James travels to school at 35 mph and John drives back home along the same path at 45 mph. What is their average speed on this round trip?	

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Round 2

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Round 2

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1. Solve for x: $5(x - 7) - 2x + 1 = 6(3 - x)$	2. Evaluate: $20^2 - 18^2 + 16^2 - 14^2 + \dots + 4^2 - 2^2$
3. Solve for x: $7x^2 + 18x - 9 = 0$	4. Solve for m: $\frac{8}{m+3} - \frac{5}{m-2} = \frac{7}{m^2+m-6}$
<p>5. Which of the given points is a solution to the system: $\begin{cases} y \geq x + 3 \\ 2x - y < x + 4 \end{cases}$</p> <p>List all the points that are solutions.</p> <p>(1,8) (-4,2) (-6,-7) (5,-8)</p>	

Round 2

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Round 3

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1. Evaluate: $5[3^3 - (-4)^2] - 6 2017 - 2022 $	2. Find the smaller solution to the equation: $5x^2 - 10x = 8x + 8$
3. Karlee has a bag of fair six-sided dice. The orange ones are numbered 1-6 like standard dice. The blue ones are numbered 2, 4, 6, 8, 10, 12. If Karlee chooses one blue die and one orange die, what is the probability she rolls a sum of ten?	4. Find the coordinates of the vertex of the parabola with equation: $y = 2x^2 - 12x + 7$
5. Solve the system below. Write answer in the form: (x, y, z) $\begin{cases} 3x + 2y - z = -7 \\ 2x + y + 2z = 6 \\ 5x - 2y + z = -1 \end{cases}$	

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Round 4

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Round 4

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1. Evaluate in simplest radical form: $(\sqrt{48} + \sqrt{18})(\sqrt{75} - \sqrt{8})$	2. Solve for a : $7a^2 - 4a - 6 = 0$
3. Solve for x : $\sqrt{2x - 3} = \sqrt{x + 2} + 1$	4. What are the coordinates of the x-intercepts of the function: $f(x) = -3 x - 2 + 9$
5. Abby the Alligator, Bob the Butterfly, Candy the chameleon, and Dirk the Dragonfly are racing across the playground. At the end of the race, Bob is neither first nor last. Abby is behind Candy and between Bob and Dirk. Write the letters A, B, C, and D in the order they finished. (First, second, third, fourth).	

Round 4

1. Evaluate in simplest radical form: $(\sqrt{48} + \sqrt{18})(\sqrt{75} - \sqrt{8})$	2. Solve for a : $7a^2 - 4a - 6 = 0$
3. Solve for x : $\sqrt{2x - 3} = \sqrt{x + 2} + 1$	4. What are the coordinates of the x-intercepts of the function: $f(x) = -3 x - 2 + 9$
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