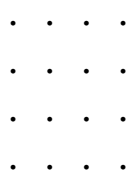
Oklahoma School of Science and Mathematics
Sixth Annual Middle School Mathematics Contest
Round One, Spring, 2008

Directions: Write the answer to each question in the box to the right of the question. Units are given in plural form even if the singular form is correct. Use scratch paper provided to do your work. Calculators are allowed, but not necessary.

Common fractions should be in simplest form ($\frac{a}{b}$, not mixed numbers).

1. If $x = 4$, what is the value of $3x - 6$?	1.
2. Simplify $\frac{3}{4} + \frac{18}{5} \div \frac{9}{25}$. Write your answer as a common fraction in lowest terms.	2.
3. Heather has enlarged a 3" x 5" picture so the both the length and width are doubled. By what number must the original area be multiplied to get the area of the enlarged region?	3.
4. How many digits are in the expanded form of 6.023×10^{23}?	4. digits
5. Nathan parked his car at Flyby Parking for his four day trip. The cost Is usually \$8 per day or partial day. Nathan has a coupon for a 20% discount off the entire cost of parking. How much did Nathan's parking cost for his 4-day trip?	5. \$ ___. ___
6. It takes 2 hours to drive from Abalar to Botus. If Oliver starts in Abalar and drives halfway to Botus, stops for 45 minutes for lunch, and then drives the rest of the way to Botus, how many minutes did his trip take?	6. minutes
7. Paulina has a bag of marbles. There are 3 green marbles, 5 yellow marbles, and 7 blue marbles. If she randomly chooses a marble, what is the probability that she will draw out a green marble? Express your answer as a fraction in simplest form.	7.
8. Jenny has a test average of 87 in math class. She has taken 5 tests. Her test grades on the first four tests are 95, 98, 72, and 80. What was her score on the fifth test?	8.
9. A recipe calls for 1 ½ cups of flour and 2 sticks of butter. If Alex only has 2/7 sticks of butter, how many cups of flour will he use?	9. cups
10. What is the smallest prime factor of 2008?	10.
11. How many squares with horizontal and vertical sides can be formed using points of the grid as vertices? (Figure is not necessarily drawn to scale – consider it to be a square.) 	11. squares
12. What is the sum of the first 10 terms of the arithmetic sequence $1, -1, -3, \cdots$?	12.
13. A restaurant mixes two gallons of milk containing 1% fat and three gallons of milk containing 2% fat. What is the percent of fat in the mixture, expressed to the nearest tenth?	13. %
14. How many lines of symmetry does the symbol Ω have?	14. lines
15. How many diagonals does a stop sign have?	15. diagonals
16. What is the sum of the least common multiple of 12 and 18 and the greatest common divisor of 12 and 18?	16.
17. With a circle irrigation system, a farmer waters as much of a square field as possible without spraying water over the boundary of the field. To the nearest tenth, what percent of the square field is <u>not</u> watered?	17. %
18. What is the integer value of x that <u>minimizes</u> the absolute value of $\left(7x^2 - 12x\right)$?	18.
19. In how many different ways can the letters in BIGFOOT be rearranged?	19. ways
20. What is the area of the triangle formed by the x-axis, the y-axis and the line $3x + 8y = 12$?	20. sq. units