2013 Rocket City Junior Math Mania
Algebra and Probability Test – 4th and 5th Grade

1. When the following numbers are written in order from smallest to largest, which number is in the middle with the set {9,1,2,8,6,2,4,2,3}?
2. 341 pencils are to be put in boxes that hold twelve pencils each. After as many boxes have been filled as possible, how many pencils will be left over?
3. When two dice are rolled, what is the probability that the numbers on the top have a sum of ten?
4. Ysabel can make four paper airplanes in six minutes, and Xavier can make three paper airplanes in ten minutes. Altogether, how many paper airplanes can they make in an hour?
5. Write the letters A, B, C, and D in order from smallest to largest.
   $A = 483 + 1722$ $B = 3598 - 1954$
   $C = 35 \times 48$
   $D = 12345 \div 3$
6. When the secret number is tripled and this result is increased by 17, the final result is 98. What is the secret number?
7. In Mr. McHugh's class of twenty-five students, 12 students have blue highlighters, 7 students have yellow highlighters, and the remaining students have both types of highlighters? How many total highlighters are there in Mr. McHugh's class?
8. Evaluate: 9×853
9. I am thinking of a number. When I multiply this number by itself, I get the original number. What are the two possible numbers I could be thinking of?
10. Sam has 9 dollars to buy movie tickets. If each ticket costs $\frac{3}{4}$ of a dollar, how many movie tickets can Sam buy?
11. Three students are going to compete in the Solve-O-Rama where first-, second-, and third-place trophies are given. In how many ways might these trophies be awarded to the students?
12. In how many ways can the letters in the word "BEAR" be arranged?
13. Sally's friends split 35 dollars evenly between a group of 5 friends (which includes Sally). Sarah's friends split 36 dollars between a group of 6 friends (which includes Sarah). Sally and Sarah use their portions of the money to go to a movie that costs 4 dollars each. How many total dollars do they have left?
14. Find a number you can put in the box in order to make the equation true. X 4 – 7 = 49
15. If a letter is selected from the word "MATHEMATICS". Find the probability of selecting a consonant minus the probability of selecting a "T"?
16. An arithmetic sequence has a third term of 22 and a fifth term of 40. What is the first term?
17. 5 + 8 + 11 + 14 + 17 + 20 + 23 + 26 = ?
18. Find the value of x that satisfies the equation: $\frac{2}{3} = \frac{x-7}{x}$.
19. Two six-sided dice are rolled. What is the probability that neither number is a prime number?
20. When a student multiplies her two favorite numbers, the answer is 72. When she divides the two numbers, she gets 2. What is the sum of these two positive numbers?

2013 Rocket City Junior Math Mania
Geometry and Potpourri Test – 4th and 5th Grade

1. What is the least common multiple of 18 and 15?

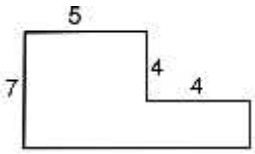
2. The perimeter of a rectangle is 32. The width is 5. What is the length of the rectangle?

3. In a three-unit apartment building, Amy, Bella, and Ciara live in units 1, 2, and 3, but not necessarily in that order. In addition, each of them owns one pet; there is a Zebra, a Yeti, and a Walrus. Neither Amy nor the Zebra lives in unit 1, the Yeti lives in unit 2, and Ciara owns the Zebra. What person and pet live in Unit 3?

4. What is the perimeter, in meters, of a parallelogram with sides measuring 14 m and 31 m?

5. What is the sum of the areas of all six faces of a rectangular solid box that has length 6, width 4, and height 5?

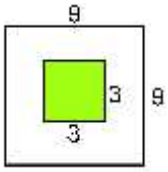
6. What is the area of the shape below? (All angles are right angles.)



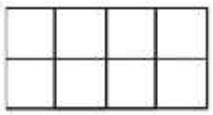
7. Wilson has three pairs of pants, five shirts, and two ties. If an "outfit" is a pair of pants, a shirt, and a tie, how many different outfits can Wilson wear?

8. There are many positive numbers so that when I multiply the number by itself, you actually get a small answer than the original number. Write down one number that has this quality.

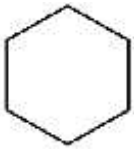
9. If Elton throws a dart that hits the 9 x 9 dartboard shown, what is the probability of landing in the shaded region of the dartboard?



10. How many pathways are there from the upper-left of the figure to the bottom-right of the figure if you can only move right or down on each move?



11. How many lines of symmetry does a regular hexagon have (like the one to the right)?



12. I am thinking of an odd number less than 1000. The hundreds digit is 5 more than the tens digit. The sum of the digits used in the number is 10. What is the largest possible number I could be thinking of?

13. All but one side of a polygon has length 4, and the other side has length 7. If the perimeter of the polygon is 31, how many sides does the polygon have?

14. Eight times twelve is how much greater than seven times eight?

15. How many seconds are in seven-and-a-half minutes?

16. The sum of the angles in a triangle is 180°. In triangle ABC, if angle A is 25°, and angle B is 4 times angle A, then what is the measure of angle C?

17. Find the value of $48 \div (76 - 68) \times 3$.

18. If Eli has $2.45 made up of quarters and nickels, and he has exactly 37 coins, how many of them are nickels?

19. John had a collection of snakes, turtles, and birds. If there are 14 heads and 26 feet in his collection, and the number of snakes is equal to the number of birds, how many turtles does he have?

20. How many even numbers between 1001 and 2013 are multiples of 5?

TB1. If two angles of a triangle are $43°$ and $48°$, then write the letter of the following phrase that best describes the triangle: (A) acute isosceles, (B) acute equilateral, (C) acute scalene, (D) right scalene, (E) right isosceles, (F) right equilateral, (G) obtuse scalene, (H) obtuse isosceles, (J) obtuse equilateral, (K)none of these.