MATH COMPETITION
FOR DEAF AND HARD-OF-HEARING STUDENTS

April 6, 2013
■ RIT Competition ■
Sprint Round
Problems 1-30

Name _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

This section of the competition consists of 30 problems. You will have 40 minutes to complete all the problems. You are allowed to use a basic calculator. You are not allowed to use books or other aids during this round. Calculations may be done on scratch paper. All answers must be complete, legible and simplified to lowest terms. Record only final answers in the blanks in the right-hand column of the competition booklet. If you complete the problems before time is called, use the remaining time to check your answers.

In each written round of the competition, the required unit for the answer is included in the answer blank. The plural form of the unit is always used, even if the answer appears to require the singular form of the unit. The unit provided in the answer blank is the only form of the answer that will be accepted.

Total Correct	Scorer's Initials

1. Of the following numbers, what is the sum of the two smallest numbers:

        0.15   0.42   0.063   0.1657

1. _____

2. Evaluate $(x + y)(x - y)$ when $x = 13$ and $y = -5$.

2. _____

3. A cell phone plane costs $50 per month. At this rate, how many dollars does it cost for 10 years?

3. $_____

4. What is the value of $\frac{1}{8}$ of 20% of $\frac{1}{2}$ of 480?

4. _____

5. A series of novels consists of 40 volumes. Each volume is the same price. If the first 10 volumes cost a total of $160, what is the cost of the entire series, in dollars?

5. $_____

6. What is the sum of all the even, positive integers less than 20?

6. _____

7. How many of the letters in **MATHEMATICS** have a horizontal line of symmetry?

7. _____

8. Find the positive difference between 2(6) + 4(3) and
    8(3 + 3).

8. _____

9. The measures of the sides of a right triangle are 7, 24,
    and 25. What is the area of the triangle?

9. _____

10. Parallelogram *ABCD* has *A*(0, 1), *B*(2, 1), and *C*(4, 0) as
    three of its vertices. What is the sum of x-coordinates
    and y-coordinates of point *D*?

10. _____

11. To make a pie, twenty-four apples were needed. But due
    to an apple shortage, the baker cut the recipe to make the
    pie filling three-fourths the normal volume. How many
    fewer apples were needed?

11. _____

12. A gardener has 2009 pumpkin seeds to be planted in a
    square garden bed. If she wants to have 45 pumpkin
    seeds in each row and in each column, how many more
    pumpkin seeds are needed?

12. _____

13. Each edge of a cube has length 3 inches. What is the
    cube's total surface area, in square inches?

13. _____ sq. in

14. Xanthia buys hot dogs that come in packages of six and hot dog buns that come in packages of eight. What is the smallest number of hot dogs packages she can buy in order to be able to buy an equal number of hot dogs and hot dog buns?

14. _____

15. What is the arithmetic mean of the integers from -4 through 5, including both end numbers? Express your answer as a decimal to the nearest tenth.

15. _____

16. What is the positive integer N for which

$$22^2 \text{ x } 55^2 = 10^2 \text{ x } N^2$$

16. _____

17. On Tuesday, a magician said, "I made my wife disappear 31 days ago." What day of the week did he make her disappear?

17. _____

18. Points A, B, C, and D lie on a line in that order. If $AB = 2$ units, $BC = 5$ units, and $AD = 14$ units, what is the ratio of AC to BD? Express your answer as a common fraction.

18. _____

19. What is the slope of the line through (4, 3) and (7, -5)? Express your answer as a common fraction.

19. _____

20. Two-thirds of the students at Baker Middle School take home economics. There are 834 students who take home economics. How many students are there at Baker Middle School?

20. _____

21 "Buy 4, get 1 free" is equivalent to purchasing five at a discount of what percent?

21 _____%

22. How many positive integers less than 200 are divisible by 2 and 5?

22. _____

23. In a triangle, the second angle is twice as large as the first and the third angle is three times as large as the second. What is the measure, in degrees, of the first angle?

23. _____degrees

24. What is the area, in square centimeters, of a circle with a circumference of 8π cm? Express your answer in terms of π.

24. _____ sq. cm

25. Point A is at $(0, 0)$ and point B is on the line $y = 4$. The slope of segment AB is $\frac{2}{3}$. What is the sum of the x-coordinates and y-coordinates of point B?

25. _____

26. Purple paint is made with 16:3:1 ratio of white paint: blue paint: red paint. How much white paint, in gallons, is needed in order to make one gallon of purple paint? Express your answer as a common fraction.

26. _____ gallons

27. There are 90 people in one room. $\frac{1}{3}$ of the people have green eyes and $\frac{1}{5}$ of the green eyed people have red hair. How many people have green eyes and red hair?

27. _____

28. Joe's bowling scores were 112, 182, and 142. What does he need to score in his fourth game to get a mean score of 132?

28. _____

29. Mikka wants to order a pizza with two different toppings. He has 8 different toppings to choose from. How many different pizzas could he order?

29. _____

30. When two fair 6-sided dice are tossed, what is the probability of tossing at least one 6? Express your answer as a common fraction.

30. _____