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$$A = \pi R^2$$

$$D = \frac{M}{V}$$

$$V = LWH$$

$$C = 2\pi R$$

$$A = L \cdot W$$

# MATH COMPETITION

FOR DEAF AND HARD-OF-HEARING STUDENTS

## Team Problem Solving Challenge

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April 5, 2013

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**DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.**

All teams (both official and non-official teams) will participate in this Team Problem Solving Challenge. Each team will be given a set of 10 problems to solve within 75 minutes. Team members may work together in any way to solve the problems. Team members may talk during this section of the competition. The use of calculators is allowed, and calculations may also be done on scratch paper. All answers must be complete, legible, and simplified to lowest terms. When all ten problems are complete, the team captain will walk to one of the judges with the answers. The judges will check the answers if correct. Otherwise, the team captain will be asked to go back to the team and rework the incorrect answers. The first four official teams with 10 correct answers will advance to the Team Countdown Round. The unofficial teams could receive prizes if placed in the top four.

Team Name \_\_\_\_\_

Team Members 1. \_\_\_\_\_, captain

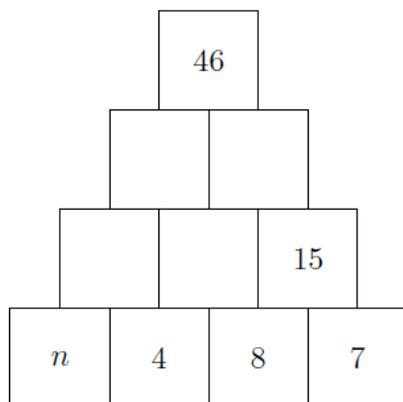
2. \_\_\_\_\_

3. \_\_\_\_\_

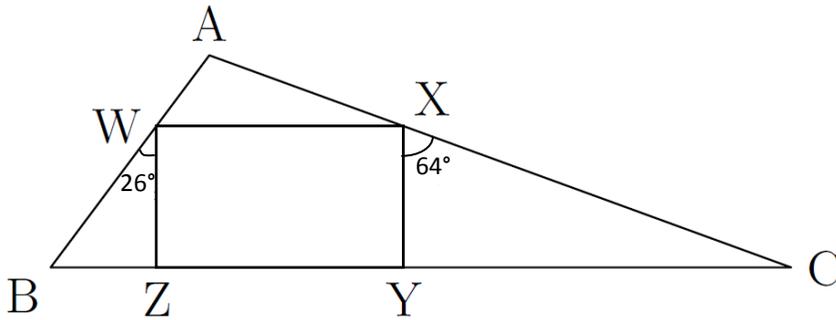
4. \_\_\_\_\_

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1. Bill buys a 32 oz bottle of soda for 3 cents per ounce. Jill buys a 40 oz bottle of soda for 2.5 cents per ounce. How many more cents does Jill's bottle of soda cost? 1. \_\_\_\_\_cents
  
2. The point value of a word is determined by adding together the value of each letter. In the alphabet, letters A through H each have a value of 5 points, letters I through R each have a value of 7 points, and letters S through Z each have a value of 8 points. What is the total point value of the word MATHEMATICS? 2. \_\_\_\_\_points
  
3. A catalogue sells pencils two ways: (1) 50 cents each and (2) \$2 per pack of 12. What is the lowest possible purchase price for exactly 30 pencils? 3. \$\_\_\_\_\_
  
4. In this Number Wall, you add the numbers next to each other and write the sum in the block above the two numbers. For example, 15 is the sum of 8 and 7. Which number will be the block labeled '*n*'? 4. \_\_\_\_\_



5. Rectangle  $WXYZ$  is drawn on  $\triangle ABC$ , such that point  $W$  lies on segment  $AB$ , point  $X$  lies on segment  $AC$ , and points  $Y$  and  $Z$  lie on segment  $BC$ , as shown. If  $m\angle BWZ = 26^\circ$  and  $m\angle CXY = 64^\circ$ , what is  $m\angle BAC$ , in degrees?



5. \_\_\_\_\_degrees

6. If the area of a right triangle and the area of a rectangle are equal, the triangle  $ABC$  has sides of 6 units, 8 units, and 10 units. The width of a rectangle is 4 units. What is the perimeter of this rectangle, in units?

6. \_\_\_\_\_

7. In the counting game Bing-Bong, Arlene starts counting at 1, but skips all multiples of 3 and all numbers that contain the digit "3". For example, Arlene counts: 1, 2, 4, 5, 7, 8, 10, 11, 14, 16, ... What is the 25<sup>th</sup> number in this sequence?

7. \_\_\_\_\_

8. According to one doctor, to avoid injury, three times the weight of your backpack (including bag and things inside) should be no more than your body weight. Suppose you weigh 120 pounds and your empty backpack weighs 5 pounds. What is the maximum weight in pounds that should be placed in your backpack to avoid causing injury to your back?

8. \_\_\_\_\_lbs

9. Erin is making 12 golf trophies. Each trophy has a golf ball on it that has 300 dimples that have to be individually painted. If it takes Erin 3 seconds to completely paint one dimple and one second for every 3 dimples to dab her brush, how many minutes will it take Erin to paint all the dimples?

9. \_\_\_\_\_mins

10. Kenton watched 2000 adults board a cruise ship. Half of the adults were women. If 20% of the women and 9% of the men were wearing sunglasses, what was the total number of men and women wearing sunglasses?

10. \_\_\_\_\_