



## **Team Problem Solving Challenge**

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**April 10, 2015**

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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 60 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.

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1. The stem and leaf plot shows the height, in inches, of each student in Ms. Murphy's math class. Find the median height of her students.

Stem	Leaf
4	8 8 9
5	0 1 1 2 4 4 5 8 9
6	0 1

Legend:  $6|0 = 60$

1. \_\_\_\_\_ in

2. A large gear makes 2 revolutions for every 5 revolutions a small gear makes. If the large gear makes 36 revolutions, how many revolutions does the small gear make?

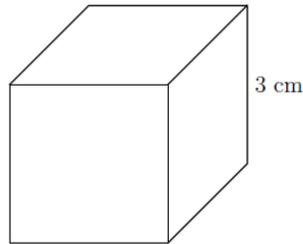


2. \_\_\_\_\_

3. Sixty chairs are placed in rows. The number of chairs in each row is 4 less than the number of rows. What is the number of chairs in one row?

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

4. If the edge of a cube measures 3 cm, what is the surface area, in square centimeters, of the cube?



4. \_\_\_\_\_sq. cm

5. License plates for Hawaii consist of three letters followed by three digits. How many different license plates are possible if the first letter is an **H** and the second letter is an **I**?

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

6. A box has 6 green, 5 red, 8 blue, 5 white, 7 yellow, and 9 brown Lego pieces. What is the probability of a randomly selected Lego piece that is white? Express your answer as a common fraction.

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

7. The One World Trade Center in New York City is 1776 feet tall and has 104 stories. The Empire State Building is 1,454 feet tall and has 102 stories. How many feet taller is the average height of a story in the One World Trade Center? Express your answer as a decimal to the nearest tenth.

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

8. ABCDE is a five-digit number where A, B, C, D, and E are its unique digits. Use the clues to determine the number:

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

- 1) None of the digits are prime or zero
- 2) Even and odd digits alternate
- 3) C is square number
- 4)  $A + D = B$

\_\_\_\_\_

A      B      C      D      E

9. The area of a rectangular scoreboard is 72 square feet. Find the smallest perimeter, in integers, of the scoreboard.

9. \_\_\_\_\_ ft

10. The point with the coordinates (5, -11) is the midpoint of the segment with one endpoint at (9, 1). Find the sum of the coordinates of the other endpoint.

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