

2016 John O'Bryan Mathematical Competition
Freshman-Sophomore Individual Test

Directions: Please answer all questions on the answer sheet provided. All answers must be written legibly in the correct blanks on the answer sheet and in simplest form. Exact answers are to be given unless otherwise

1. (Select all that apply) For your answer write the **capital letter(s)** which corresponds to all correct choice. There are 9 sections of seats in an auditorium. Each section contains more than 89 seats and less than 157 seats. Which of the following could be the number of seats in this auditorium?

A) 98 B) 801 C) 809 D) 1056 E) 1405 F) 1695

2. The slope of a line that contains points $A(6, k)$ and $B(11, w)$ is 2. Find the value of $(w - k)$.

11. A trapezoid has sides with respective lengths 2, 15, 20, 15. Find the length of an altitude of this trapezoid.

12. In the diagram, $ABCD$ is a rhombus. If the degree measure of $\angle ADC$ is 7 times the degree measure of $\angle BAC$, find the degree measure of $\angle BCD$.



Name:

Team Code:

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Notes:

Name: _____ **ANSWERS** _____

Team Code: _____

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otherwise specified in the question. No units of measurement are required. Each problem has the same point-value (1 point).