

Incoming Freshmen - Summer Math Packet  
William M. Davies, Jr. Career & Technical High School  
2010

Directions: Complete all ten problems below in the space provided. You must show all work neatly and in an organized fashion along with the correct answer to receive ten points. No scrap.

**Problem #1 (N&O) 8-2:** Demonstrates understanding of the relative magnitude of numbers.

**Arrange the following real numbers in order from least to greatest:**

$$-\frac{2}{3}; \quad |-.75|; \quad .62; \quad \frac{5}{6}; \quad \sqrt{64}; \quad -2^3$$

**Problem #2 (N&O) 8-4:** Accurately solves problems involving the conventions of order of operations.

**What is the value of the expression  $95 \div (8 - 3) - (3 \times 0.6)^2$  ?**

**Problem #3 (N&O) 8-6:** Uses a variety of mental computation strategies to solve problems (N&O) 8-7: Makes estimates.

According to the U.S. Census Bureau, in 1860 at least 1 but less than 3 out of every 100 people in the United States were 65 or older. Approximately what percentage of the U.S. population was 65 or older?

**Problem #4 (G&M) 8-2:** Applies the Pythagorean Theorem.

The legs of a right triangle are 33 ft. and 56 ft. Emily is trying to compute the length of the hypotenuse but she has forgotten the formula. Help Emily compute the length of the hypotenuse.

**Problem #5 (G&M) 8-6:** Demonstrates conceptual understanding of surface area or volume by solving problems involving surface area and volume.

You have a cube with length 1.5 meters. Calculate the surface area and the volume of the cube to the nearest hundredth.

**Problem #6 (F&A) 8-1:** Identifies and extends to specific cases a variety of patterns represented in graphs.

Graph the equation  $y = 3x + 4$ .

**Problem #7 (F&A) 8-3:** Demonstrates conceptual understanding of algebraic expressions by evaluating and simplifying.

Evaluate the equation  $y = 7\sqrt{x} + 2x$  when  $x = 4$ ,  $x = 9$ , and  $x = 16$ .

**Problem #8 (F&A) 8-4:** Demonstrates conceptual understanding of equality by showing that two expressions are or are not equivalent by applying algebraic properties.

Determine if the following expressions are equal. Justify your answer by showing work.

$$3(2x - 6) = 2(3x - 9)$$

**Problem #9 (DSP) 8-2: Analyzes patterns, trends, or distributions in data using measures of central tendency.**

**On Harold's last five math tests, he got the following scores: 68, 78, 90, 85, 90. Find the mean, median, and mode of his test scores.**

**Problem #10 (DSP) 8-3: Organizes and displays data using scatter plots to analyze the data to formulate or justify conclusions.**

**Mr. Liu's science class recorded the average weekly high temperature in Boston for a 6-week period. Their data is shown below.**

<b>Week</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Temp. (°F)</b>	<b>60</b>	<b>50</b>	<b>58</b>	<b>45</b>	<b>40</b>	<b>35</b>

- a) Draw a scatter plot of the data in the table.**
- b) Draw a line of best fit.**
- c) Given the data, in what season was the data most likely collected? Justify your answer.**