

**Math 9 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 (F&A) 10-3b, c:** Demonstrates conceptual understanding of algebraic expressions by solving problems involving evaluating expressions and translating problem situations into algebraic expressions.

**Kensho used a gift card to buy a \$6 book. After the purchase, he had \$14 left on his card. Create and solve an equation to find the original value of the gift card.**

**Problem #2 (F&A) 10-2d:** Demonstrates conceptual understanding of linear and nonlinear functions and relations through maximum and minimum values.

**Kyle earned a 92 on his first test. He needs a total of 140 points or better on his first two tests to pass class. What score must Kyle get on his second test to insure that he passes the class?**

**Problem #3** (N&O) 10-4c: Accurately solves problems that involve but are not limited to ratios.

Of the 42 presidents who preceded George W. Bush,  $\frac{1}{3}$  were elected to a second term. Of those elected to a second term,  $\frac{1}{7}$  were former vice presidents of the United States. What fraction of the first 42 presidents were elected to a second term and were former vice presidents?

**Problem #4** (DSP) 10-2a: Analyzes patterns, trends, or distributions in data in a variety of contexts to solve problems; solves problems involving conceptual understanding of the sample from which statistics were developed by determining, using, or analyzing measures of central tendency (mean, median, or mode).

The heights of the starting players for the Davies High School boy's basketball team are  $78\frac{1}{8}$  in., 74 in.,  $71\frac{5}{8}$  in.,  $70\frac{3}{4}$  in.,  $69\frac{1}{2}$  in. Find the average height of the starting players.

**Problem #5 (F&A) 10-4c:** Demonstrates conceptual understanding of equality by solving linear equations (symbolically and graphically) and expressing the solution set symbolically or graphically, or providing the meaning of the graphical interpretations of solution(s) in problem-solving situations.

A salesman marks up the price of everything he sells by 20%. The equation for the sales price,  $p$ , is  $p=1.2w$ , where  $w$  is the wholesale cost. What will be the sales price of a sweater with a wholesale cost of \$48?

**Problem #6 (F&A) 10-1c:** Identifies, extends, and generalizes a variety of patterns (linear and nonlinear) to solve problems represented by  $c$  sequences.

Find the next three terms in the arithmetic sequence  $-8, -3, 2, 7,$   
\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

**Problem #7 (N&O) 10-2g:** Demonstrates understanding of the relative magnitude of real numbers by solving problems using number lines or equality and inequality symbols involving numbers represented in scientific notation.

Most baleen whales migrate an average of  $2^5 \times 125$  km each way. The gray whale has the longest known migration of any mammal, a distance of  $2^4 \times 3 \times 125$  km farther each way than the average baleen whale migration. How far does the gray whale migrate each way?

**Problem #8 (N&O) 10-7d:** Makes appropriate estimates by determining the level of accuracy needed and analyzing the accuracy of results related to the value of a non-perfect square root or cube root.

The speed of a tsunami in miles per hour can be found using  $r = \sqrt{14.88d}$ , where  $d$  is the water depth in feet. Find the depth of the water if a tsunami's speed is 400 miles per hour.

**Problem #9 (N&O) 10-4a:** Accurately solves problems that involve but are not limited to proportional relationships.

Allyson weighs 55 pounds and sits on a seesaw 4 feet away from its center. If Marco sets on the seesaw 5 feet away from the center and the seesaw is balanced, how much does Marco weigh?

**Problem #10 (N&O) 10-4b: Accurately solves problems that involve but are not limited to percents.**

**Anna earns \$1500 monthly. Of that, \$114.75 is withheld for Social Security and Medicare. What percent of Anna's earnings are withheld for Social Security and Medicare?**