

Name: _____

Heatherwood Mathletes
Heatherwood Math Olympics 2004-2005: Test 1
December 9, 2004

A. Mixed Addition and Subtraction (2 points each)

$$\begin{array}{r} 12 \\ + 7 \\ \hline \end{array}$$

$$\begin{array}{r} 28 \\ - 15 \\ \hline \end{array}$$

$$\begin{array}{r} 27 \\ + 15 \\ \hline \end{array}$$

$$\begin{array}{r} 53 \\ - 27 \\ \hline \end{array}$$

A.1 The Nuggets scored 46 points in the first half and 47 in the second half. How many points did the Nuggets score in the game? (**3 points**)

A.2 A Christmas tree started with 95 working lights. Fifteen lights burned out. How many lights remained lit? (**3 points**)

B. Elementary Multiplication (2 points each)

$$\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$$

B.1 Tina sold seven bags of cookies for \$8 each. How much money did she collect all together? (**3 points**)

C. Elementary Division (2 points each)

$$4 \overline{) 24}$$

$$5 \overline{) 45}$$

D. Elementary Adding and Subtracting Fractions (2 points each)

$$\frac{1}{4} + \frac{3}{4} =$$

$$1\frac{1}{3} - \frac{2}{3} =$$

E. More Advanced Multiplication and Division (2 points each)

$$\begin{array}{r} 24 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 36 \\ \times 24 \\ \hline \end{array}$$

$$\begin{array}{r} 57 \\ \times 43 \\ \hline \end{array}$$

$$6 \overline{) 258}$$

$$7 \overline{) 469}$$

$$9 \overline{) 783}$$

F. Elementary Algebra: Solve for x (2 points each)

$$x - 7 = 3$$

$$x + 8 = 11$$

$$\frac{x}{5} = 5$$

G. Fractions, Decimals, Roots, and Powers (2 points each)

G.1 Convert Decimals to Fractions in Simplest Terms

$$1.25 =$$

$$0.48 =$$

G.2 Express Fractions in Simplest Terms

$$\frac{7}{28} =$$

$$\frac{51}{12} =$$

G.3 Arithmetic of Fractions

$$2\frac{3}{4} - 1\frac{1}{2} =$$

$$2\frac{2}{3} + \frac{1}{2} =$$

$$2\frac{1}{2} \times \frac{1}{4} =$$

$$\frac{1\frac{1}{2}}{1/4} =$$

$$\frac{2\frac{4}{3}}{1\frac{2}{3}} =$$

G.4 Exponents and Roots

$$2^3 =$$

$$\sqrt{49} =$$

H. Algebra: Solve each equation for x (3 points each)

$$4(x + 2) - 5 = 11$$

$$3(x + 2) - 2x = 10$$

I. Algebra: Solve each pair of equations for x and y (3 points each)

$$2x + 3y = 11$$

$$3x + 2y = 8$$

$$x - 3y = 1$$

$$x + 2y = 4$$

J. Word Problems: Write each as an equation, then solve (5 points each)

J.1 Five more than four times a number is equal to 21. What is the number?

J.1a. Write the equation for this problem.

J.1b. Now solve it for the number.

J.2 The sum of three consecutive numbers is 63. What are the numbers?

J.2a. Write the equation for this problem.

J.2b. Now solve it for the two numbers.

J.3 The sum of two numbers is 9 and their difference is 1. What are the numbers?

J.3a. Write the two equations for this problem.

J.3b. Now solve for the two numbers.