Math 100   Name: _____

American River College

Exam 1   Student ID: _____

❖ Show all work

❖ No notes, books, or calculators allowed.

❖ Write answers in **lowest terms** when appropriate

1. (20 points) Perform the indicated operation(s) and write in lowest terms.

   a. (4 points) $\dfrac{4}{7} \cdot \dfrac{21}{24}$

   b. (4 points) $\dfrac{36}{5} \div \dfrac{12}{45}$

   c. (6 points) $\dfrac{4}{9} - \dfrac{5}{12}$

   d. (6 points) $\dfrac{4}{9} + \dfrac{5}{12}$

2. (18 points) Simplify the expressions

   a. (4 points) $12 + 64 \div 8 - 4$

   b. (6 points) $2^2[4 - (15 - 20)]$

   c. (8 points) $\dfrac{-27(-2) - |6 \cdot 4|}{-2(3) - 2(2)}$

3. (14 points) Simplify the inequalities. Then state whether the inequality is TRUE or FALSE.

   a. (6 pts) $55 \geq 3[4 + 3(4 + 1)]$

   b. (8 pts) $\dfrac{7(3+1) - 2}{3 + 5 \cdot 2} \leq 2$

4. (14 points) Consider the set of numbers: $\left\{-5.3, -5, -\sqrt{5}, 0, 1.2, \sqrt{11}\right\}$

   a. (6 points) Graph the numbers on a number line.

   b. (4 points) List the numbers which are RATIONAL

   c. (4 points) List the numbers which are IRRATIONAL.

5. (20 points) Simplify the expressions

   a. (4pts) $5a + ab^2 - 2ab^2 + 3a$

   b. (6pts) $-5(x + y) + 2(x - y)$

   c. (6 pts) $7(2m + 3) - 2(8m - 4)$

   d. (4 pts) $6p - 8p^2 + 4p + 6p^2$

ADDITIONAL PROBLEMS ON BACK

6. (14 points) For each equation below, state the property used.

Properties for Addition and Multiplication:

Inverse Property

Associative Property

Commutative Property

Distributive Property

Identity Property

a. $5 \cdot 16 = 16 \cdot 5$

b. $13(y - 2) = 13y - 26$

c. $0 + 5.3 = 5.3$

d. $\dfrac{1}{\sqrt{3}} \cdot \sqrt{3} = 1$

e. $(y + 2)(y - 6) = (y - 6)(y + 2)$

f. $z + (4 + x) = (4 + x) + z$

g. $(x + y) + z = x + (y + z)$

Bonus: (10 points) Simplify the expression.

$$\frac{3}{4x} - \frac{5}{6} \div \frac{5x}{8} - \frac{1}{3x}$$

Problem	1	2	3	4	5	6	Bonus	Total
Score								