Test 3A - MTH 2010
Dr. Graham-Squire, Fall 2014

Name: _____

I pledge that I have neither given nor received any unauthorized assistance on this exam.

_____
(signature)

DIRECTIONS

1. Show all of your work, even on the multiple choice questions. A correct answer with insufficient work or incorrect notation will lose points.

2. Clearly indicate your answer by putting a box around it.

3. Calculators, cell phones and computers are <u>not</u> allowed on this test.

4. Make sure you sign the pledge.

5. Number of questions = 13. Total Points = 65.

1. (3 points)

   (a) Calculate and reduce your answer to lowest terms: $\dfrac{4}{6} \div \dfrac{7}{9}$

   (b) Bob mops floors. If Bob can mop $\frac{5}{9}$ of a room in an hour, how long does it take him to mop 3 rooms (assume all rooms are the same size).

   (c) Calculate $7.578 \div 0.9$.

2. (4 points)

(a) (2 points) Fill in the blank spots in the ratio table to figure out how many cups of red and blue paints should be mixed to give purple paint:

Cups of blue	5			$\frac{25}{12}$
Cups of red	7			
Cups of purple		24	1	

(b) The price of a pair of pants decreased from \$80 to \$76. What was the percent decrease?

(c) List all the factors of 48.

3. (3 points)

   (a) Which of the following numbers are divisible by 6?

   $$14 \qquad 36 \qquad 456 \qquad 3 \qquad 333 \qquad 1,375,636 \qquad 78,246$$

   (b) Find the prime factorization of 540.

   (c) Is 161 prime? Explain your reasoning

4. (5 points) In a box of chocolate candies, 40% of the candies are dark chocolate, and the rest are milk chocolate. There are 8 more milk chocolate candies than dark chocolate candies. In all, how many chocolate candies are in the box?

5. (5 points) If you multiply an odd number by 3 and then add 1, what kind of number (odd or even) do you get? Explain *why* your answer is always correct.

6. (5 points) If Q and R are integers, which of the following expressions could be irrational?

  (I) $\frac{Q}{R}$

  (II) $Q - R$

  (III) $\sqrt{Q \times R}$

  (IV) $R \times Q^2$

  (V) $0.00\overline{RQR}$

(A) I, III, IV

(B) V only

(C) III only

(D) II, III, V

(E) None could be irrational

7. (5 points) It takes hose A 5 minutes to fill the kiddie pool, and hose B takes 7.5 minutes to fill the kiddie pool. How long would it take for the two hoses to fill up the kiddie pool together?

8. (5 points) Write a word problem for $5 \div \dfrac{1}{3}$, then solve the problem with the aid of a math drawing, a table, or a double number line. Explain your reasoning.

9. (5 points) The letters L, M, and N represent digits (possibly equal) in the twelve digit number $x = 111,111,111,LMN$. For which values of L, M, and N is x divisible by 40?

(A) L=4, M=2, N=0

(B) L=1, M=0, N=0

(C) L=0, M=0, N=4

(D) L=3, M=2, N=0

10. (5 points) The chairs in a large room can be arranged in rows of 18, 25, or 40 with no chairs left over. If C is the smallest possible number of chairs in the room, which of the following inequalities does C satisfy?

(A) $C \leq 300$

(B) $300 < C \leq 600$

(C) $600 < C \leq 1000$

(D) $C > 1000$

11. (5 points) Write the repeating decimal $0.07\overline{35}$ as a fraction. Your answer should be a fraction with no decimals in it, written in its most reduced form.

12. (5 points) If $2\frac{1}{2}$ pounds of water fills $3\frac{1}{2}$ buckets, how many buckets will 12 pounds of water fill? If the last bucket is not full, state what *fraction* of the bucket will be full.

13. (5 points) The ratio of Dominic's legos to Eva's legos is 4 to 3. After Dominic gives half of his legos to a dancing penguin, he has 11 fewer legos than Eva. How many legos does Eva have?

Extra Credit(up to 3 points) In the space below, write either the number 1 or the number 3. If you write 1, you are guaranteed to get 1 point extra credit. If you write 3, you will get 3 points, UNLESS 5 or more students in the class total write 3, in which case everyone who writes 3 will get no extra credit.