

MA201 Test 3 - 12/3/09

Name: _____

Section: _____

Directions:

Please print your name clearly. This is a 75 minute exam and is worth 15% of your final grade. There are 100 points possible. Calculators may not be used on this exam. Answers without work will receive little or no credit. Good luck!

Problem	Points possible	Points earned
1	5	
2	5	
3	12	
4	15	
5	9	
6	15	
7	10	
8	5	
9	12	
10	12	
Total	100	
+ Bonus		
Final Score		

1. (5 pts) Explain the density property for rational numbers.

2. (5 pts) Find three rational numbers between $\frac{1}{3}$ and $\frac{4}{9}$.

3. The length of a day on Jupiter is about 10 hours. The Jupiter children were doing arithmetic on their 10 hour clock. Help them solve the following problems.

(a) (3 pts) $7 +_{10} 5$

(b) (3 pts) $3 -_{10} 8$

(c) (3 pts) $5 \times_{10} 5$

(d) (3 pts) What is the additive inverse of 7 in 10 hour clock arithmetic?

4. (a) (5 pts) Illustrate $4 - (-2)$ using color counters. Explain your picture using complete sentences.

(b) (5 pts) Illustrate $4 + 2$ using color counters. Explain your picture using complete sentences.

(c) (5 pts) Explain, using complete sentences, why $a - (-b) = a + b$.

5. Compute the following:

(a) (3 pts) $\frac{a}{b} + \frac{c}{d}$

(b) (3 pts) $\frac{a}{b} \times \frac{c}{d}$

(c) (3 pts) $\frac{a}{b} \div \frac{c}{d}$

6. For the following, explain how to compute the problem using the indicated conceptual model.

(a) (5 pts) Model $\frac{1}{2} + \frac{1}{4}$ using colored regions.

(b) (5 pts) Model $\frac{7}{6} - \frac{2}{3}$ using fraction strips.

(c) (5 pts) Model $\frac{5}{6} \cdot \frac{3}{4}$ using a rectangular array.

7. Write a word problem that models each of the following.

(a) (5 pts) $\frac{1}{2} \times \frac{3}{4}$

(b) (5 pts) $3 \div \frac{1}{2}$

8. (5 pts) A student in your class claims the following:

$$\frac{2}{3} + \frac{3}{4} = \frac{5}{7}.$$

What is the student's mistake and how would you address his/her misunderstanding? Make sure you use a conceptual model.

9. (a) (3 pts) Write $\frac{90}{135}$ in simplest form.

(b) (3 pts) Write $\frac{11}{4}$ as a mixed number.

(c) (3 pts) Write $3\frac{2}{5}$ as a fraction.

(d) (3 pts) Compute $1\frac{3}{4} \div \frac{1}{2}$.

10. Use a number line to model the following problems (make sure you label everything appropriately).

(a) (3 pts) $-2 - 3$

(b) (3 pts) $2 + (-3)$

(c) (3 pts) $2 + 3$

(d) (3 pts) $2 - (-3)$

Bonus:

11. (5 pts) What is $|3 - \pi|$?

12. (5 pts) Write $\overline{.27}$ as a fraction.