

**Math 102
Exam #3
Spring 2009**

Show all work (and answers) on the blank paper provided. Write nothing on this paper other than your name.

Name:

1a	10	
1b	10	
1c	10	
2	10	
3a	10	
3b	10	
4a	10	
4b	10	
5a	10	
5b	10	
6a	10	
6b	10	
7a	5	
7b	5	
8a	10	
8b	10	
9	10	
10a	10	
10b	10	
10c	10	
10d	10	
Total	200	
Adj.		
%		

- 1) Find all values for x that make the statement true, then identify the nonnegative solutions that are less than the modulus.
 - a. $2x + 9 \equiv 28 \pmod{5}$
 - b. $4x - 6 \equiv 18 \pmod{8}$
 - c. $7 - 9x \equiv 13 \pmod{10}$

- 2) If today is Wednesday, what day of the week will it be 1000 days from now?

- 3) A Middle-earth pipeweed peddler drives a wagon according to the following schedule: Ride 3 days from Bree to Rivendell; rest 1 day at Rivendell; ride 4 days from Rivendell to Isengard; rest 2 days at Isengard; ride 5 days back to Bree; rest 3 days at Bree. Then the cycle begins anew. If the peddler is starting his trip to Isengard today, what will he be doing...
 - a. 175 days from today?
 - b. 400 days ago?

- 4) Find the prime factorization of the number.
 - a. 2541
 - b. 23660

- 5) Find the LCM and GCD. Show your work!
 - a. 40 & 65
 - b. 3500 & 7350

- 6) Express as a quotient of integers. Show your work!
 - a. $4.\overline{5}$
 - b. $3.1\overline{06}$

- 7) Determine whether the number is rational or irrational, identifying the repeating pattern where applicable and justifying each answer.
 - a. 3.141514155141514155141514155141514155...
 - b. 8.737737773777377773...

- 8) State the name of the property of real numbers illustrated.
 - a. $(r + s) + t = t + (r + s)$
 - b. $(b \cdot a) + (c \cdot d) = (a \cdot b) + (c \cdot d)$

- 9) Two angles are supplementary. If the measure of one angle is 9 less than twice the measure of the other angle, what are the measures of the two angles?

- 10) See additional problems on the board.