

Student ID		

Last Name: \_\_\_\_\_

First Name: \_\_\_\_\_

Show all your work.

When appropriate,  
**BOX** your final answer.

M\$5  
Homework

# 1

1. Determine whether each statement is true or false. Explain your answer. (If false, give a counterexample.)
- a. Every nonterminating decimal is irrational.      b. If  $p$  and  $q$  are integers, then  $\frac{p}{q}$  is a rational number.

2. Determine whether each statement is true or false. Explain your answer. (If false, give a counterexample.)
- a. Every whole number is rational.      b. Natural numbers are not rational.
- c. Irrational numbers are not real numbers.

3. Evaluate  $\frac{0}{2}$  and  $\frac{2}{0}$ .

4. Show that  $5\frac{1}{2}$  is rational.

5. Which, if any, of the following numbers are equivalent? Explain your answer.

$$\frac{22}{7}$$

3.14

$\overline{3.14}$

$\pi$

6. In an episode of "The Simpsons," Professor Frink addresses fellow scientists at a conference:

Prof. Frink: Scientists ... Scientists, please! I'm looking for some order. Some order, please, with the eyes forward and the hands neatly folded and the paying of attention.  $\pi$  is exactly three!

[crowd gasps]

Prof. Frink: Very sorry that it had to come to that, but now that I have your attention, we have some exciting new research from young Lisa Simpson. Let's bring her out and pay attention.

Explain why Professor Frink's statement is so alarming.

