Name: _____ M$5 Homework 1

1. Is the set of integers closed under division? Use an example to explain your answer.

2. Which set of numbers is *not* closed with respect to the given operation?
(1) integers with respect to multiplication
(2) even integers with respect to addition
(3) integers with respect to subtraction
(4) odd integers with respect to addition

3. Which of the following expressions is irrational?
(1) $\frac{\sqrt{121}}{11}$ (3) $\frac{2\pi}{3\pi}$
(2) $-\sqrt{576}$ (4) $\sqrt{\frac{4}{3}}$

4. Which property of the real numbers is illustrated by the equation $\otimes+(\Delta+0)=(\otimes+\Delta)+0$?

5. The set {0,1} is closed under the operation of
(1) addition (3) subtraction
(2) multiplication (4) division

6. Tell whether the statement is true or false. If false, give a counterexample.
a. "Every integer is a whole number."
b. "All fractions are rational numbers."
c. "Any non-terminating decimal is irrational."

7. Which of the following sets of real numbers is closed under division?
(1) {1} (3) {0}
(2) {all positive integers} (4) $\{-1\}$

8. Which property of real numbers is illustrated by the equation:
$6 \cdot \frac{1}{6} = 1$?