

# Unit I Lesson I Homework

I. Given the real numbers  $\frac{1}{2}$ ,  $\sqrt{2}$ ,  $-0.22$ ,  $2.\bar{2}$ ,  $0.121121112 \dots$ , and  $-2$ , list those that are:

1. Which are Whole Numbers? \_\_\_\_\_
2. Which are Integers? \_\_\_\_\_
3. Which are Rational Numbers? \_\_\_\_\_
4. Which are Irrational Numbers? \_\_\_\_\_

II. True or False? If you choose False, please justify your choice with a sentence or counterexample.

5. \_\_\_\_\_ Every integer is a rational number
6. \_\_\_\_\_ Every rational number is an integer
7. \_\_\_\_\_ Every real number is either rational or irrational
8. \_\_\_\_\_ Every real number can be expressed as a terminating or repeating decimal
9. \_\_\_\_\_ Every whole number is an integer
10. \_\_\_\_\_ Every integer is a whole number
11. \_\_\_\_\_ Every real number is irrational
12. \_\_\_\_\_ Every irrational number is real
13. \_\_\_\_\_ Every rational number is either an integer or a whole number
14. \_\_\_\_\_ Every irrational number is rational

III. Use checks to show whether or not the given real number belongs to that set:

Real	Natural	Whole	Integer	Rational	Irrational
3					
-25					
$\sqrt{8}$					
$-\frac{5}{7}$					
0.141523					
$-9.3\bar{9}$					
0					
$2\frac{1}{2}$					
$\sqrt{16}$					
$\frac{15}{3}$					

**IV. Simplify the expression**

1.  $3 \cdot 2 + \frac{5}{9}$

2.  $2 \cdot 3^2 \div 7$

3.  $7[(18 - 6) - 6]$

4.  $3(2.7 \div 0.9) - 5$

5.  $\frac{5^3 \cdot 2}{1 + 6^2 - 8}$

6.  $\frac{(9-7)^2+3}{8-3} = (9 - 7)^2 + 3 \div 8 - 3$ . Are these expressions equivalent? Please justify your answer.