Honors Algebra I

3.2 - Homework

Name HW Guide

Date: _____

Number Systems and Characteristics of Functions

Into which group does each number go?

	Natural	Whole	Integers	Rational	Irrational	Real	Imaginary	Complex
22.5								
3/8								
$\sqrt[3]{14}$								
4-7i								
13i								
-18								
$\sqrt{-18}$								
2i-18.4								
0								
9/4								

Look at your notes

Identify the property or equation that justifies each missing step or equation in the following table. Check your work when you finish!

Equation	Steps
1. $\frac{1}{2}x-\frac{1}{6}(x-42)=13.5$	Given
2.	Look at yesterday's
3.	
4.	Homework.

Is it Rational?

For each of the numbers below decide whether it is rational or irrational. Explain your reasoning in detail.

	Rational or Irrational?	Detailed reason why:
1. 5	Rational	It is a natural number, in the group of rational numbers.
2. $(5+\sqrt{5})(5-\sqrt{5})$		
3. 0.575	Rational	The decimal terminates.
4. $\sqrt{5}$		
5. $5+\sqrt{7}$	Irrational	When you simplify, you get a non-repeating, non-terminating decimal.
6. $\frac{\sqrt{10}}{2}$		
7. $5.\overline{75}$	Rational	The decimal repeats.
8. $\frac{5}{7}$		
9. $(7+\sqrt{5})(5-\sqrt{5})$	Irrational	When you simplify, you get a non-repeating, non-terminating decimal

In the right-hand column, write whether you *agree* or *disagree* with each student's statement.

10. Arlo says, "$0.\overline{57}$ is an irrational number."	Well,
11. Hao says, "No, Arlo, it is rational because $0.\overline{57}$ can be written as a fraction."	what
12. Eli says, "Maybe Hao's correct, you know. 'Cause $0.\overline{57}=\frac{57}{100}$."	do
13. Korbin says, "Hang on. The decimal for $0.\overline{57}$ would go on forever if you tried to write it. That's what the bar thing means, right?"	you
14. Hank says, "And because it goes on forever, that *proves* $0.\overline{57}$ has *got* to be irrational."	think?