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Rational Numbers Guide Notes

Math 8

<u>A rational number</u> is a number that can be in the form $\frac{p}{q}$ where p and q are integers and $q \neq 0$.

A rational number can be made by dividing two integers, or it is a number that can be written as the ratio of two integers.



Include fractions, terminating decimals, repeating decimals, integers, whole and natural numbers.

Integer

Whole Numbers

Natural numbers

Irrational Numbers

Include square roots that don't work out to be ratios (no perfect answers) and decimals that don't repeat but that never end.

Sample Problem 1: Identify each number as rational or irrational.

a.

$\frac{-2}{4}$	
12. 17	
$\sqrt{36}$	
$\sqrt{32}$	

b.

$\frac{18}{6}$	
$\pi = 3.141591$	
$\sqrt{121}$	
√56	

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Sample Problem 2: Write the numbers in order from least to greatest.

a. $\frac{1}{2}$, $\frac{2}{3}$, $\frac{2}{6}$, $\frac{-5}{6}$

b. -2.1, -2.13, -2.2, -2.123

c. $\frac{2}{3}$, $\frac{-1}{6}$, $\frac{5}{6}$, $\frac{-1}{2}$

d. 4.1, -4.1, -3.50, 3.5

Sample problem 3: Graph each pair of numbers on the number line. Use the graph and write <, or > or = to compare the numbers.

a.





b.

$$-\frac{2}{3} \, \square \, \frac{2}{3}$$



c.



d.

$$-3\frac{5}{6}$$
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Sample Problem 4: Identify each decimal as repeating or terminating.

a.

-0.5	
1.6666	
$2.\overline{3}$	
14.05	

b

-0.131313	
1.65	
$2.\overline{21}$	
-4.12	