Lesson 7
Rational Numbers

Name _____

Rational Number	Any number that can be written as a fraction, integer or as a repeating or terminating decimal.

You can write integer, whole number, and natural number as a fraction. So they are all rational numbers. The square root of a perfect square is also a rational number.

$3 = \frac{3}{1}$

$-5 = \frac{-5}{1}$

$0 = \frac{0}{1}$

$\sqrt{4} = 2 = \frac{2}{1}$

You can write every terminating decimal as a fraction.

Use what you know about place value to find the fraction that is equivalent to any terminating decimal.

Decimal	Words	Fraction
0.4	four tenths	$\frac{4}{10} = \frac{2}{5}$
0.75	Seventy five hundredths	$\frac{75}{100} = \frac{3}{4}$
0.386	three hundred eighty-six thousandths	$\frac{386}{1000} = \frac{193}{500}$
$\sqrt{0.16} = 0.4$	four tenths	$\frac{4}{10} = \frac{2}{5}$

You can write every repeating decimal as a rational number.

Example: $0.\overline{3}$

$\frac{3}{9} = \frac{1}{3} = .\overline{3}$

$0.\overline{512} = \frac{512}{999}$

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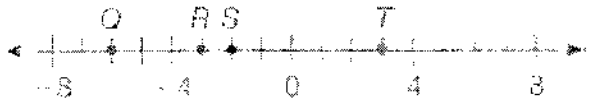
Practice:

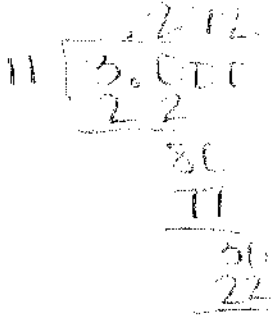
1. Which point on the number best represents $-\frac{6}{2}$



P

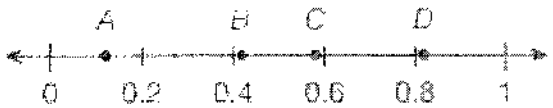
2. a. What is the decimal expansion of $\frac{3}{11}$. $0.\overline{27}$

b. What is the decimal expansion of 3. 3.0



3. Which point on the number line below best represents 42%?

B

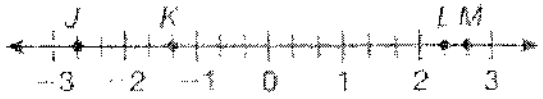


4. What is 0.35 written as a fraction?

$\frac{35}{100} = \frac{7}{20}$

5. Which point on the number line best represents $-2\frac{2}{3}$?

J



6. A gymnast is $4\frac{5}{12}$ feet tall. What is the decimal expansion equivalent to $4\frac{5}{12}$?

.416
12 | 5.00
-48
20
-12
80

$4.41\overline{6}$

7. The metal composition of a penny is 97.5% zinc and only 2.5% copper. How would 2.5% be written as a decimal? 0.025

8. Write 65% as a decimal. Plot and label a point for it on the number line.

.65

9. Are all repeating decimals rational numbers? Explain and give two examples to support your answer.

yes .3 $4\frac{1}{1}$ .242424