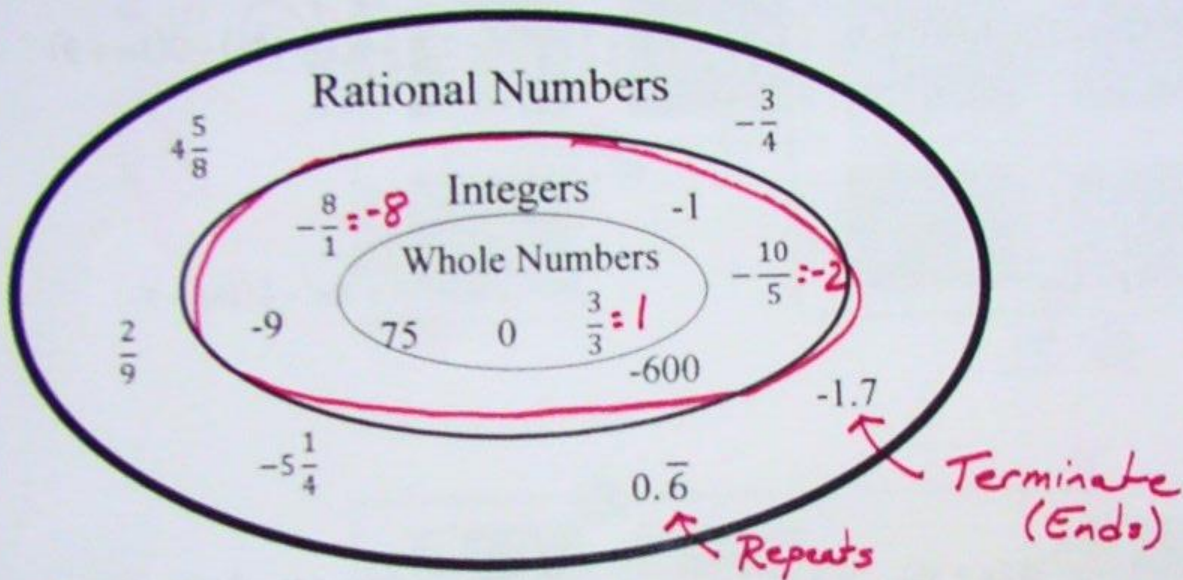


Objectives: I can identify types of rational numbers and express equivalent numbers for comparison.

14) 11/11

## Rational Numbers

Numbers have different classifications. Some numbers can be classified in multiple ways. A **rational** number is any number that you can write as a ratio,  $\frac{a}{b}$  of two integers, where  $b$  is not zero. The diagram below shows relationships among rational numbers.



Peri

Always simplify numbers before classifying them. Every whole number is also an integer and a rational number. Every integer is also a rational number.

### Practice

Identify the classification(s) for the following numbers by circling the classification(s) for each.

- |                     |              |         |                 |
|---------------------|--------------|---------|-----------------|
| 1) 5.8              | Whole Number | Integer | Rational Number |
| 2) 6                | Whole Number | Integer | Rational Number |
| 3) -10              | Whole Number | Integer | Rational Number |
| 4) $0.\overline{6}$ | Whole Number | Integer | Rational Number |
| 5) $\frac{1}{2}$    | Whole Number | Integer | Rational Number |
| 6) $-\frac{2}{3}$   | Whole Number | Integer | Rational Number |

$$\frac{3}{10} = 0.3$$

Express each of the fractions as decimals.

1)  $\frac{1}{9} = \underline{0.\overline{1}}$

2)  $\frac{2}{9} = \underline{0.\overline{2}}$

3)  $\frac{3}{9} = \underline{0.\overline{3}}$

4)  $\frac{4}{9} = \underline{0.\overline{4}}$

5)  $\frac{5}{9} = \underline{0.\overline{5}}$

6)  $\frac{6}{9} = \underline{0.\overline{6}}$

7)  $\frac{7}{9} = \underline{0.\overline{7}}$

8)  $\frac{8}{9} = \underline{0.\overline{8}}$

9)  $\frac{9}{9} = \underline{1}$

10) What pattern is shown when the denominator is 9? The numerator repeats

11) What fraction do you think would be equivalent to  $0.\overline{14}$ ?  $\frac{14}{99}$

12) What fraction do you think would be equivalent to  $0.\overline{128}$ ?  $\frac{128}{999}$

13) What fraction do you think would be equivalent to  $0.\overline{32}$ ?  $\frac{32}{99}$

Check your answers to #11 - 13 by changing your fraction to a decimal.

Write the fraction equivalent to each of the following decimal numbers.

14)  $-0.\overline{2} = \underline{-\frac{2}{9}}$

15)  $5.\overline{3} = \underline{5\frac{3}{9} = 5\frac{1}{3}}$

16)  $0.444444\overline{4} = \underline{0.\overline{4}} = \underline{\frac{4}{9}}$

17)  $-0.\overline{16} = \underline{-\frac{16}{99}}$

18)  $4.\overline{124} = \underline{4\frac{124}{999}}$

19)  $0.\overline{27} = \underline{\frac{27}{99}} = \underline{\frac{3}{11}}$

Graph the following sets of numbers on a number line. Then list them in order from least to greatest.

