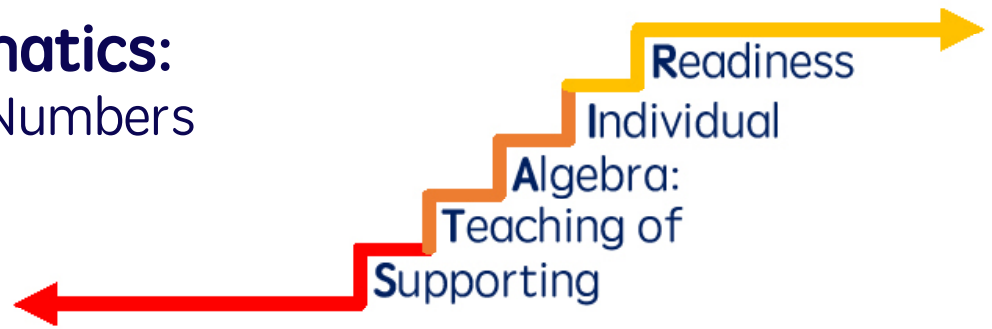


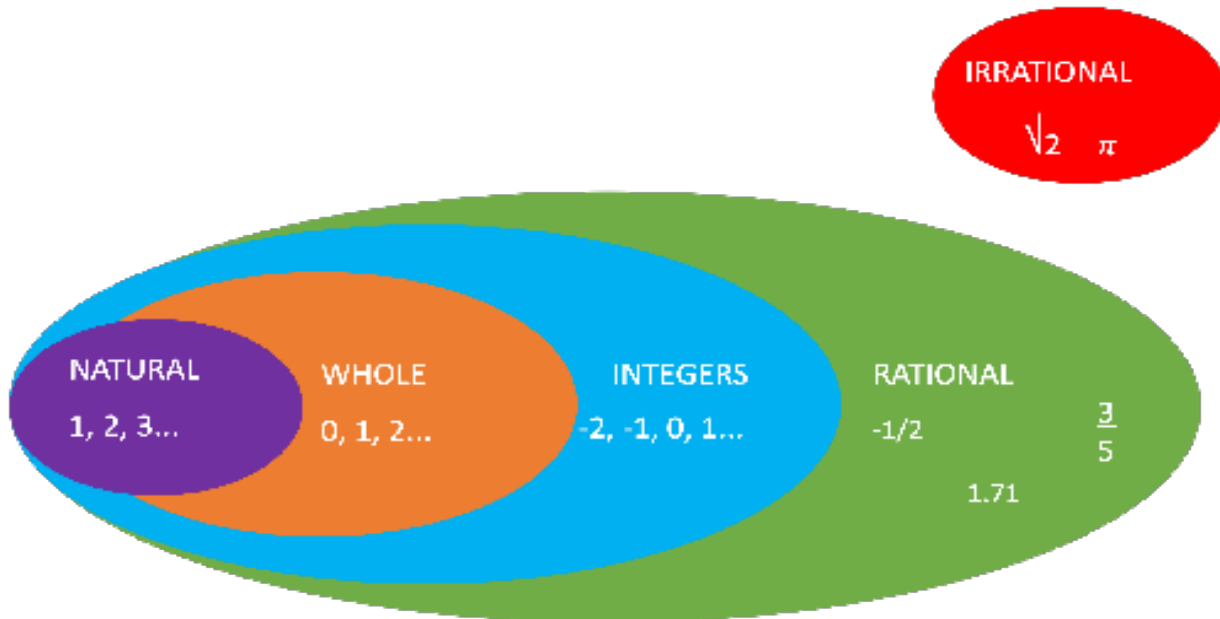
# Ideas in Mathematics:

## Negative Rational Numbers



### Key Concepts

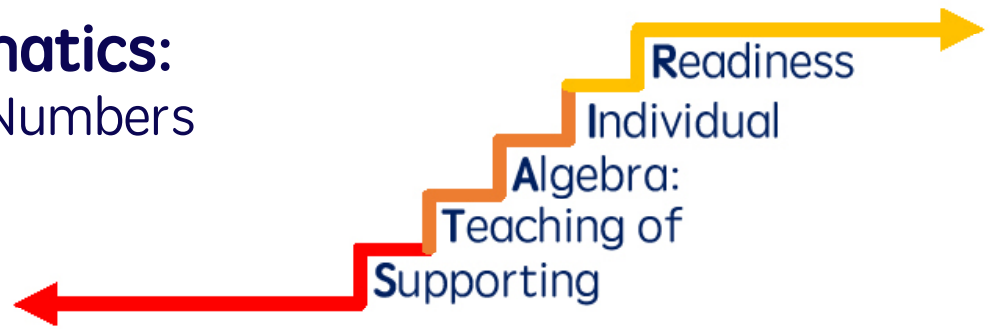
- A rational number is a number that can be made by dividing two integers and is often depicted as  $a/b$ . Examples include:
  - $\frac{1}{4}$
  - 0.25
  - $1\frac{1}{4}$
  - $-\frac{1}{4}$
- Natural numbers, whole numbers, and integers are all rational numbers.
- Irrational numbers include numbers that cannot be represented by the division of two integers. Examples include numbers with infinitely repeating decimals. For example:
  - $\pi = 3.145159265\dots$
  - $0.3 = 0.33333333333333\dots$



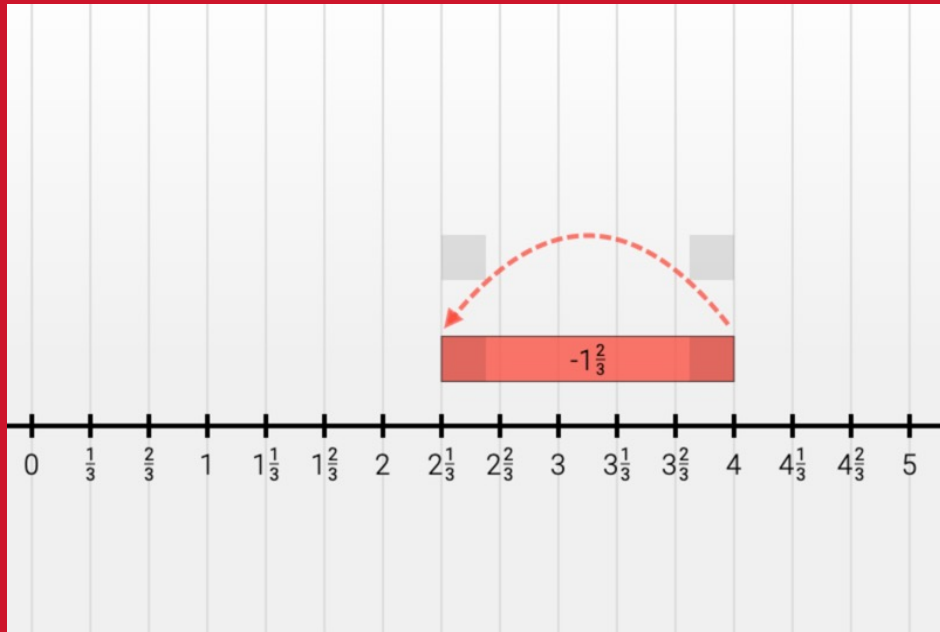
### Teaching Rational Numbers

- Prior to teaching rational numbers, it is beneficial to teach operations using positive and negative integers.
- When teaching rational numbers, fractions may be a challenging topic for students. It is beneficial to review or reteach any fraction concepts as necessary to ensure that students understand what fractions are before they begin to manipulate them.
- When working with negative rational numbers, number lines, two sided counters, and algebra tiles are useful visualization tools.

# Ideas in Mathematics: Negative Rational Numbers



Example of Number Line Depicting  $4 - 1\frac{2}{3} = 2\frac{1}{3}$

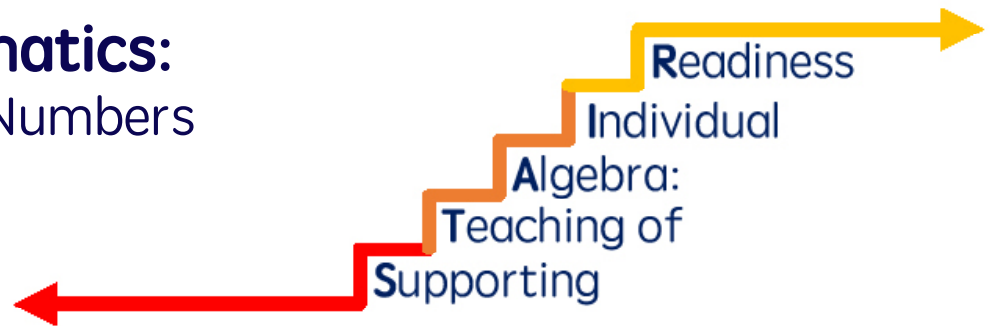


Example of Algebra Tiles Depicting  $(2x-1)(-x+1) = -2x^2 + 3x - 1$



# Ideas in Mathematics:

## Negative Rational Numbers



### Resources

- [Math Learning Center Number Line](#)
  - o This number line can be set to portray whole numbers, fractions, or decimals and can be a great tool for helping students manipulate negative rational numbers.
- [Didax Algebra Tiles](#)
  - o Algebra tiles are versatile tools that can be used to represent whole numbers, integers, and rational numbers.
- [Mathigon Algebra Tiles](#)
  - o This website provides an additional format for using Algebra tiles virtually.
- [Didax](#)
  - o This website provides two sided counters