

Set Theory

Natural Numbers - those that can be counted on one or more fingers

Whole Numbers - Natural Numbers AND

Integers -  $\mathbb{Z}$ , the set of all positive and negative whole numbers <sup>Zero</sup>

Rational Numbers - any number that can be expressed as a ratio of two integers

$$\frac{-19}{-19} = \frac{4}{4} = 1, 0.5 = \frac{1}{2}, -0.75 = \frac{-3}{4} = \frac{3}{-4}, 0.909090\dots = \frac{10}{11}$$

Irrational Numbers - numbers that cannot be expressed as a ratio of two integers

$$\pi \approx 3.14\dots, \sqrt{2}, \sqrt{7}, 0.808808880\dots$$

Real Numbers - the set of all rational and irrational numbers

Imaginary numbers - those that are related to the imaginary unit,  $i = \sqrt{-1}$

$$0.95, \frac{95}{99}, \frac{15\pi-8}{7}, \frac{19^2}{\sqrt[3]{6859}}, -11$$

Natural #'s: 19

Whole #'s: 19

Integers: -11, 19

Rational #'s:  $0.95, \frac{95}{99}, 19, -11$

Irrational:  $\frac{15\pi-8}{7}$

Real: All of 'em

### Inequalities

relate a variable to a subset of numbers  $\infty$

