

Section 1.2: Subtracting Real Numbers

Tuesday, January 22, 2019 12:33 PM

Opposites (Additive Inverses)

- the opposite of a number has the same magnitude (size / absolute value) but different sign

3 and -3 are opposites

$-\frac{2}{7}$ and $\frac{2}{7}$ are opposites

0 is its own opposite

Subtracting Real Numbers:

$$a - b = a + (\text{opposite of } b)$$

examples:

$$\begin{aligned} 3 - 5 &= 3 + (\text{opposite of } 5) \\ &= 3 + (-5) \\ &= -2 \end{aligned}$$

$$\begin{aligned} 3 - (-5) &= 3 + (\text{opposite of } -5) \\ &= 3 + 5 \\ &= 8 \end{aligned}$$

$$0 - (-10) = 0 + 10 = 10$$

note: on a calculator, you use different buttons:

$$0 - (-10)$$

↑ ↑ negation button +/-
subtraction button

$$\begin{aligned} 9 + (-7) - 5 &= 9 + (-7) + (-5) \\ \uparrow & \quad \uparrow \\ \text{adding} & \quad \text{subtracting} \\ &= 9 + (-12) \\ &= -3 \end{aligned}$$

WARNING!

subtracting is not commutative, and not associative

$$\begin{aligned} 8 - 4 &\neq 4 - 8 \\ (8 - 4) - 2 &\neq 8 - (4 - 2) \end{aligned}$$

BUT!

$$8 - 4 = 8 + (-4) = -4 + 8$$

if you need to change the order,
rewrite as addition