

Rational/Irrational

Rational → Type

1.) $0.\overline{789789789\dots}$

Rational repeating decimal

5.) $0.313131\boxed{}$

Rational terminal

9.) $\sqrt{81}$

Rational perfect square

2.) 5

Rational Counting whole, integer

6.) $0.98765\dots$

Irrational

10.) $0.222\dots$

Rational repeating

3.) $\frac{3}{4}$

Rational fraction

7.) -9

Rational, integer

11.) $0.10102\boxed{}$

Rational terminal

4.) $\sqrt{80}$

Irrational not a perfect square

8.) 0

Rational whole, integer

12.) π

Irrational

$8(4\boxed{s} - \boxed{t})$

$\boxed{s} = \boxed{3}$

$\boxed{t} = \boxed{9}$

"Evaluate"

$8(4\boxed{3} - \boxed{9})$

$8(\underbrace{12}_{} - 9)$

$8(3) = \boxed{24}$

$$1.) \frac{5s^2}{t} \quad s=2 \quad t=8$$

$$\frac{5(2)^2}{8} = \frac{5(4)}{8} = \frac{20}{8} \stackrel{\div 4}{=} \frac{5}{2}$$

$$\boxed{\frac{5}{2}}$$

$$2.) \frac{2x^2}{y^3} \quad x=6 \quad y=4$$

$$\frac{2(6)^2}{(4)^3} = \frac{2(36)}{64}$$

$$\frac{72 \div 8}{64 \div 8} = \frac{9}{8} = \boxed{1.125}$$

1-4 Add Real Numbers

$$\begin{array}{c} \downarrow \ominus \\ -5 \\ \hline \circ \circ \\ \hline \circ \end{array} + \begin{array}{c} \downarrow \oplus \\ 8 \\ \hline \circ \circ \\ \hline \circ \circ \\ \hline \circ \circ \\ \hline \circ \circ \end{array} = \boxed{3}$$

3

When adding numbers with different signs, we take their difference

$$8 - 5 = \textcircled{3}$$

1-5|

|8| bigger

$$-5 + 8$$

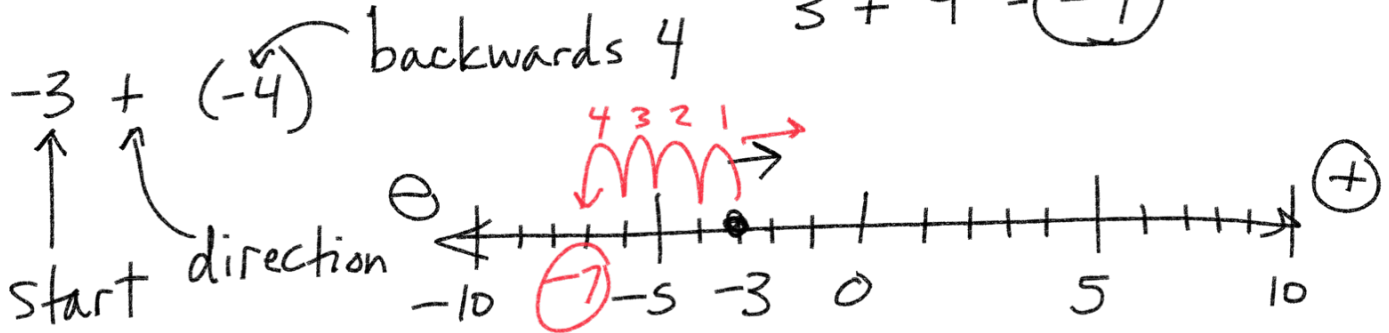
↑ start
↑ direction



$$\downarrow -3 + \downarrow (-4) = \boxed{-7}$$

If we have numbers with the same sign, we take their sum (+)

$$3 + 4 = \boxed{-7}$$



1.) $4 + (-8) = \boxed{-4}$ 2.) $12 + (-7) = 5$ 3.) $-11 + (-3) = \boxed{-14}$

Different \rightarrow difference

$$8 - 4 = \boxed{-4}$$

$$12 - 7 = \boxed{5}$$

same \rightarrow sum

$$11 + 3 = \boxed{-14}$$

4.) $\downarrow -9 + 3 = -6$ 5.) $-1 + \downarrow 8 = \boxed{7}$ 6.) $\downarrow -13 + 7 = \boxed{-6}$

Different \rightarrow difference

$$9 - 3 = \boxed{-6}$$

Different \rightarrow difference

$$8 - 1 = \boxed{7}$$

Different \rightarrow difference

$$13 - 7 = \boxed{-6}$$

7.) $2 + 7 = \boxed{9}$

$$8 + (-1)$$

8.) $\downarrow -3 + (-15) = \boxed{-18}$ 9.) $8 + 6 = \boxed{14}$

same \rightarrow sum

$$3 + 15 = \boxed{-18}$$

10.) $\downarrow -5 + (-8) = \boxed{-13}$

11.) $6 + 9 = \boxed{15}$

12.) $4 + (-11) = \boxed{-7}$

same \rightarrow sum

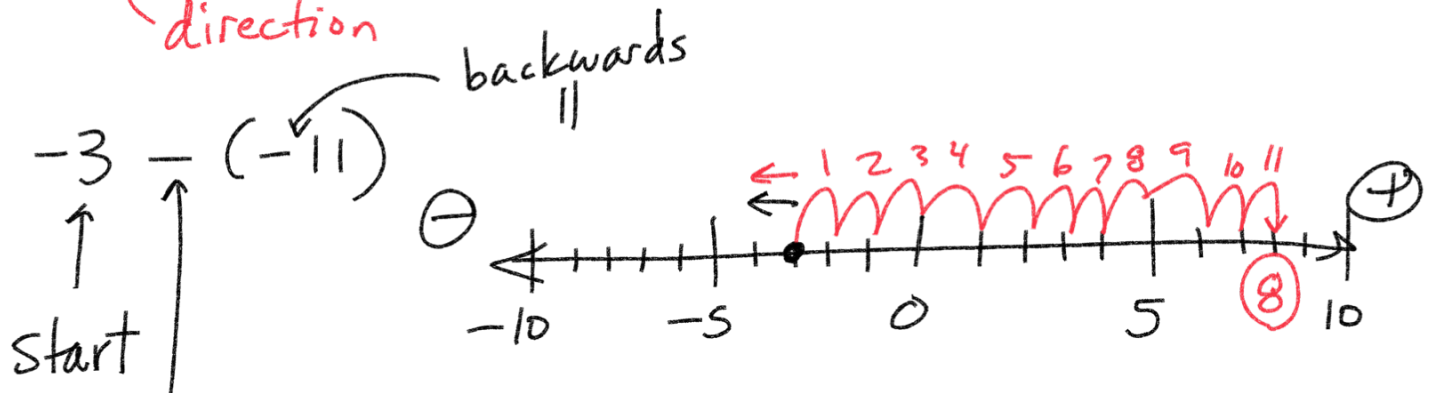
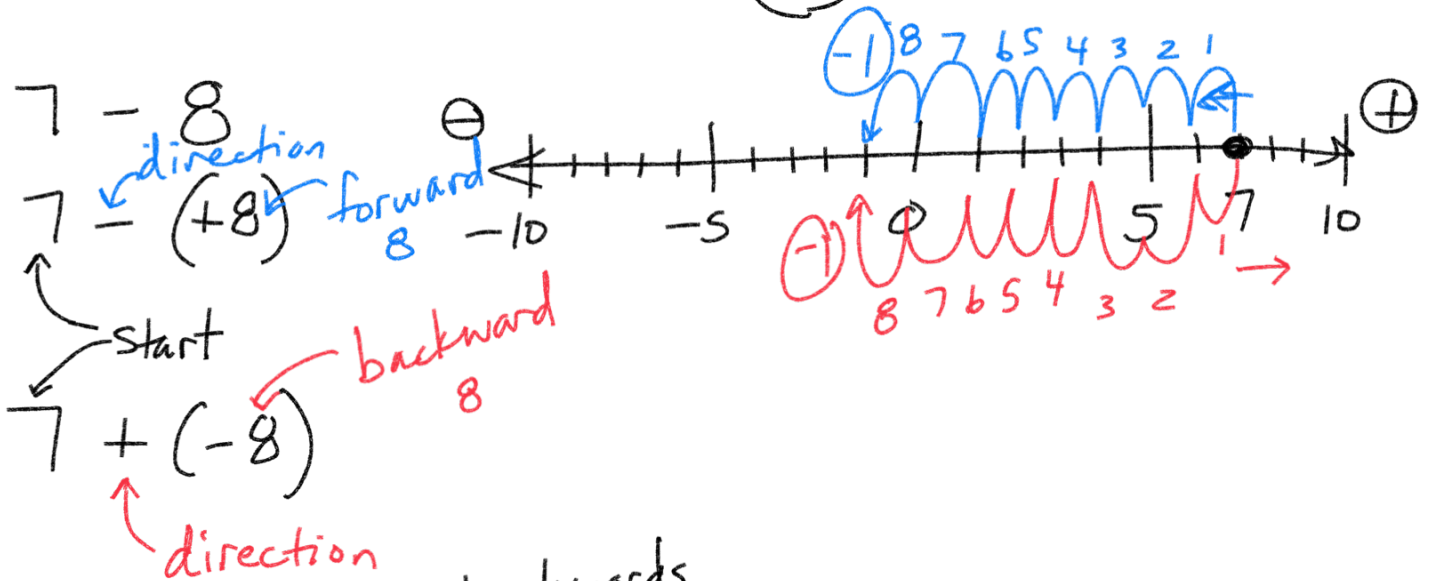
$$5 + 8 = \boxed{-13}$$

Different \rightarrow difference

$$11 - 4 = \boxed{-7}$$

1-5 Subtracting Real Number

$$7 \ominus 8 = 7 + (-8) = \ominus 1$$



direction

same sign together $\rightarrow \oplus$

different signs together $\rightarrow \ominus$

$$-3 \ominus (-11) \quad -3 \oplus (+11)$$

$$\downarrow \quad \downarrow$$

$$-3 + 11 \quad -3 + 11$$

$$-3 \oplus (-11) \quad -3 \ominus (+11)$$

$$\downarrow \quad \downarrow$$

$$-3 - 11 \quad -3 - 11$$

$$1.) -8 - 4 = (-12)$$

$\downarrow \quad \downarrow \quad \downarrow$
 $-8 + (-4)$

same \rightarrow sum $8 + 4 = 12$

$$3.) 8 - 4 = (4)$$

$$5.) 8 - (-4)$$

\downarrow
 $8 + 4 = (12)$

$$7.) -8 - (-4)$$

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

Difference \rightarrow difference
 $8 - 4 = (-4)$

$$1.) 7 - (-11)$$

\downarrow
 $7 + 11 = (18)$

$$2.) -7 - (-11)$$

\downarrow
 $-7 + 11 = (4)$

$$3.) -7 - 11 = -18$$

$-7 + (-11)$

$$4.) 7 - 11 = -4$$

$7 + (-11)$

$$2.) 6 - 9 = (-3)$$

$6 + (-9)$

$$4.) -6 - 9 = (-15)$$

$-6 + (-9)$

$$6.) -6 - (-9)$$

\downarrow
 $-6 + 9 = (3)$

different \rightarrow difference $9 - 6 = (3)$

$$8.) 6 - (-9)$$

\downarrow
 $6 + 9 = (15)$

1-6 Mult/Div Real Number

Public School

<u>You</u>	<u>Everyone else</u>	<u>Situation</u>
Happy	Happy	Good
sad	happy	Bad
happy	sad	Bad
sad	sad	Good!!

$$8 * 4 = 32$$

$$8 * (-4) = -32$$

$$-8 * 4 = -32$$

$$(-8) * (-4) = 32$$

Different \rightarrow \ominus Bad

Same \rightarrow \oplus Good! CONFIRMITY