

Rational / Irrational

Rational → Type.

- | | | |
|---|---------------------------------------|---|
| 1.) 0.789789789...
rational, repeating decimal | 5.) 0.313131...
rational, terminal | 9.) $\sqrt{36}$
rational, perfect square |
| 2.) 5
rational, counting, whole, integer | 6.) 0.98765...
irrational | 10.) 0.222... $\left(\frac{2}{9}\right)$
rational, repeating |
| 3.) $\frac{3}{4}$
rational, fraction | 7.) -9
rational, integer | 11.) 0.10102
rational, terminal |
| 4.) $\sqrt{80}$
irrational | 8.) 0
rational, integer, whole | 12.) $\sqrt{100}$
rational, perfect squares |

Perfect Squares: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100

$$8(4s - t)$$

$$s = \underline{3} \quad t = 9$$

$$8(4(3) - 9)$$

$$8(12 - 9)$$

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

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

$$\frac{5(2)^2}{8}$$

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

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

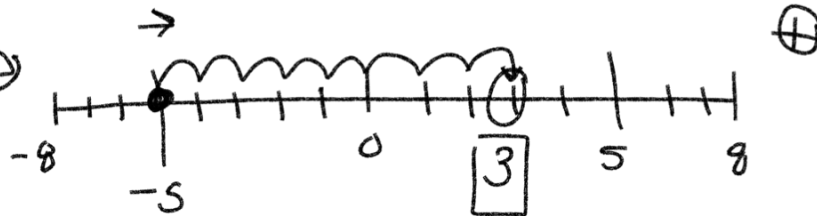
$$2.) \frac{2t^2}{s^3} \quad s = 4 \quad t = 6$$

$$\frac{2(6)^2}{(4)^3} = \frac{72 \div 8}{64 \div 8} = \frac{9}{8}$$

$$\boxed{\frac{9}{8}}$$

1-4 Adding Real Numbers

$$\begin{array}{r} \downarrow \\ -5 + 8 = \boxed{3} \end{array}$$



Adding with signs, you take the difference

$$8 - 5 = 3$$

$$-5 + 8 = \boxed{3}$$

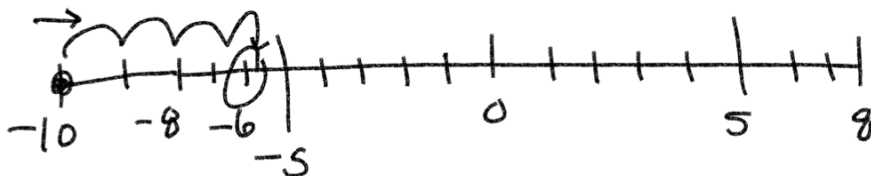
$$\begin{array}{r} \swarrow \text{forward} \\ -5 + 8 \\ \uparrow \quad \uparrow \\ \text{start direction} \\ \text{you face} \end{array}$$

$$-5 + 8 = 3$$

start ↓

$$-10 + 4 \swarrow \text{forward}$$

↑ direction



↓

$$-10 + 4 = -6$$

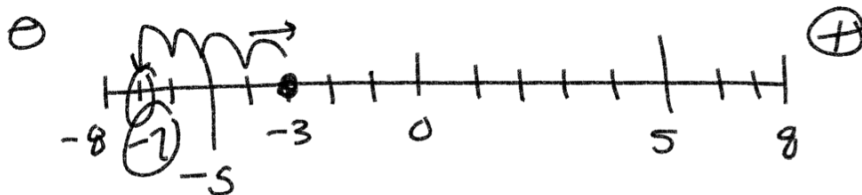
$$10 - 4 = 6 \quad \boxed{-6}$$

Different signs, take their difference

$$\begin{array}{r} \downarrow \quad \downarrow \\ -3 + (-4) \end{array}$$

same signs, take their sum (add)

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



$$\begin{array}{r} \swarrow \text{backwards} \\ -3 + (-4) \\ \uparrow \quad \uparrow \\ \text{start direction} \end{array}$$

$$1.) 4 + (-8) = \boxed{-4} \quad 5.) 12 + (-7) = \boxed{5} \quad 9.) -11 + (-3) = \boxed{-14}$$

$$8-4 = 4 \quad 12-7 = 5 \quad 11+3 = 14$$

$$2.) -9 + 3 = \boxed{-6} \quad 6.) -1 + 8 = \boxed{7} \quad 10.) -13 + 7 = \boxed{-6}$$

$$9-3 = 6 \quad 8-1 = 7 \quad 13-7 = 6$$

$$3.) 2 + 7 = \boxed{9} \quad 7.) -3 + (-15) = \boxed{-18} \quad 11.) 8 + 6 = \boxed{14}$$

$$2+7 = 9 \quad 3+15 = 18$$

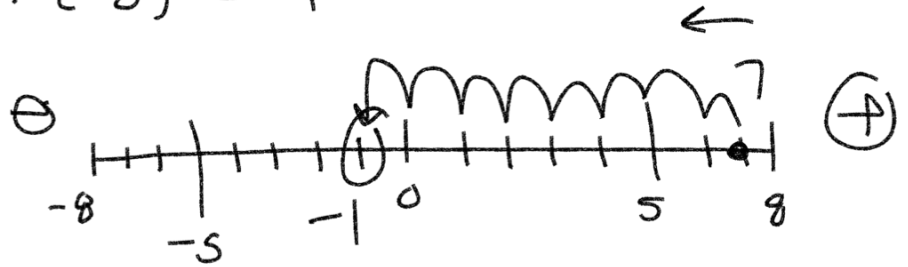
$$4.) -5 + (-8) = \boxed{-13} \quad 8.) 6 + 9 = \boxed{15} \quad 12.) 4 + (-11) = \boxed{-7}$$

$$5+8 = 13 \quad 11-4 = 7$$

1-5 Subtracting Real Numbers

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

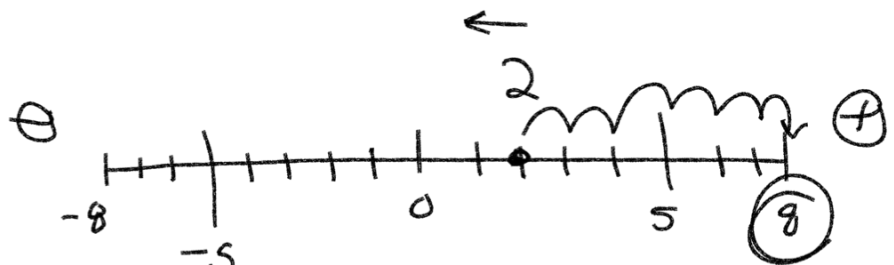
↑ ↑
start direction
forward
8



$$-3 - 11 = -3 + (-11) = -14$$

$$2 - (-6)$$

↑ ↑
start direction
backwards
6



$$2 - (-6) = 8$$

$$2 + (+6) = 8$$

$$1.) -8 - 4 = \boxed{-12}$$
$$-8 + (-4)$$

$$5.) 6 - 9 = \boxed{-3}$$
$$6 + (-9) = -3$$

$$2.) 8 - 4 = \boxed{4}$$

$$6.) \downarrow 6 - \downarrow 9 = \boxed{-15}$$
$$-6 + (-9)$$
$$6 + 9 = 15$$

$$3.) 8 - (-4) = \boxed{12}$$
$$8 + (+4) = 12$$

$$7.) 6 - (-9) = \boxed{15}$$
$$6 + (+9) = 15$$

$$4.) -8 - (-4) = \boxed{-4}$$
$$-8 + 4 = -4$$

$$8.) -6 - (-9) = \boxed{3}$$
$$\sum -6 + 9$$
$$9 - 6 = 3$$

$$9.) 7 - (-11) = \boxed{18}$$
$$7 + 11 = 18$$

$$10.) -7 - (-11) = \boxed{4}$$
$$-7 + 11$$
$$11 - 7 = 4$$

$$11.) -7 - 11 = \boxed{-18}$$
$$-7 + (-11)$$

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

1-6 Mult/Div Real Numbers

Public School

<u>You</u>	<u>Everyone Else</u>	<u>Situation</u>
Happy	Happy	Good
Sad	Happy	Bad
Happy	Sad	Bad
Sad	Sad	Good!!

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

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

Different \rightarrow Bad!! \ominus

Same \rightarrow Conformity \rightarrow Good!! \oplus

$$\frac{54}{9} = 6$$

$$\frac{54}{-9} = -6$$

$$\frac{-54}{9} = -6$$

$$\frac{-54}{-9} = 6$$