

Name: _____

Date: _____

Aim: How can we subtract Rational Numbers?

Do Now:

Evaluate each expression.

a) $-10 - 14$ $-10 + (-14)$ -24	b) $9 - (-45)$ $9 + 45$ 54	c) $-22 - (-41)$ $-22 + 41$ 19	d) $-3.4 - 5$ $-3.4 + (-5)$ -8.4 $\begin{array}{r} 3.4 \\ +5.0 \\ \hline 8.4 \end{array}$
e) $-0.2 - 1.35$ $-0.2 + -1.35$ $\begin{array}{r} 1.35 \\ +0.20 \\ \hline 1.55 \end{array}$ -1.55	f) $19 - (-0.06)$ $19 + 0.06$ 19.06	g) $-3\frac{1}{4} - 4\frac{2}{3}$ $-3\frac{1}{4} + -4\frac{2}{3}$ $-\frac{13}{4} + -\frac{14}{3}$ $-\frac{39}{12} + -\frac{56}{12}$ $-\frac{95}{12} \rightarrow -7\frac{11}{12}$	

Guided Practice

a) $-\frac{3}{10} - (-\frac{9}{10})$ $-\frac{3}{10} + \frac{9}{10}$ $\frac{6}{10}$ $\frac{3}{5}$	b) $-\frac{7}{8} - \frac{1}{4}$ $-\frac{7}{8} + -\frac{1}{4}$ $-\frac{7}{8} + -\frac{2}{8}$ $-\frac{9}{8}$ $-\frac{1}{8}$	c) $-2\frac{1}{2} - (-3\frac{3}{4})$ $-2\frac{1}{2} + 3\frac{3}{4}$ $-\frac{5}{2} + \frac{15}{4}$ $-\frac{10}{4} + \frac{15}{4}$ $\frac{5}{4}$ $\frac{1}{4}$	d) $-2\frac{1}{2} - 3\frac{3}{4}$ $-2\frac{1}{2} + -3\frac{3}{4}$ $-\frac{5}{2} + -\frac{15}{4}$ $-\frac{10}{4} + -\frac{15}{4}$ $-\frac{25}{4}$ $-6\frac{1}{4}$
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Independent Practice

<p>a) $8\frac{1}{4} - (-5\frac{1}{3})$ $8\frac{1}{4} + 5\frac{1}{3}$ $\frac{33}{4} + \frac{16}{3}$ $\frac{99}{12} + \frac{64}{12}$ $\frac{163}{12}$ $13\frac{7}{12}$</p>	<p>b) $-7\frac{3}{4} - (-4\frac{7}{8})$ $-7\frac{3}{4} + 4\frac{7}{8}$ $-\frac{31}{4} + \frac{39}{8}$ $-\frac{62}{8} + \frac{39}{8}$ $-\frac{23}{8}$ $-2\frac{7}{8}$</p>	<p>c) $-24.15 - 13.7$ $-24.15 + -13.7$ $\begin{array}{r} 24.15 \\ + 13.70 \\ \hline 37.85 \end{array}$ -37.85</p>	<p>d) $-6.775 - (-1.7)$ $-6.775 + 1.7$ $\begin{array}{r} 6.775 \\ - 1.700 \\ \hline 5.075 \end{array}$ -5.075</p>
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Connections/Word Problems

a) A diver descended 25.65 feet below the surface of the ocean. He then went 16.5 feet further down and then climbed 12.45 feet. Write a numerical expression to represent this situation. What is the new elevation of the diver?

$$\begin{aligned}
 & -25.65 - 16.5 + 12.45 \\
 & \underbrace{-25.65 - 16.5}_{-42.15} + 12.45 \\
 & -42.15 + 12.45 \\
 & \boxed{-29.7 \text{ feet}}
 \end{aligned}$$

$$\begin{array}{r} 342.15 \\ - 12.45 \\ \hline 29.70 \end{array}$$

b) The temperature on an outdoor thermometer on one day was 5.5°C . The next day, the temperature was 7.25°C less. Write an expression using subtraction to model the problem. Evaluate the expression to determine the temperature on the second day.

$$\begin{aligned}
 & 5.5 - 7.25 \\
 & 5.5 + (-7.25) \\
 & \boxed{-1.75^{\circ}\text{C}}
 \end{aligned}$$

$$\begin{array}{r} 67.25 \\ - 5.50 \\ \hline 1.75 \end{array}$$

c) Analyze the numerical expression below. Can you simplify it "quickly"?

$$\begin{aligned}
 & \cancel{-15.2} + \cancel{17.89} - \cancel{8.4} + \cancel{15.2} + \boxed{9} - \cancel{17.89} + \cancel{8.4} \\
 & \boxed{9}
 \end{aligned}$$



The
TAKEAWAY

When subtracting rational numbers, we must

Keep Change Opposite