

# SSR

Read at a Level 0 until 9:15

Nov 19-8:37 AM

## Adding/Subtracting Signed Fractions Opener

1. Luisa is 43 feet underground touring a cavern. She climbs a ladder up 14 feet. What is her new location?

$$-43 + 14 = -29$$

$$\begin{array}{r} 3 \\ 43 \\ -14 \\ \hline 29 \end{array}$$

2. The highest point in California is Mount Whitney at 14,494 feet above sea level. The lowest point in California is in Death Valley a 282 feet below sea level. What is the difference in elevations?

$$\begin{array}{l} |14494 - (-282)| \\ |14494 + 282| \end{array}$$

$$|14776| = 14776 \text{ feet}$$

3. Let  $a = -3$ ,  $b = 6$ , and  $c = -2$ . Evaluate:  $\frac{ab}{-c}$

$$\frac{(-3)(6)}{-(-2)}$$

$$\frac{-18}{2}$$

$$= -9$$

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# Learning Target

I can add and subtract signed fractions.

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## Adding/Subtracting Fractions (Positive AND Negative)

- If given mixed numbers, change to improper fractions (easier when working with negatives).
- Find a common denominator.
- Add or subtract the numerators, following the rules for integers.
- Keep the denominators the same.

Examples:

A.  $-\frac{3}{4} + 1\frac{1}{2}$

$$-\frac{3}{4} + \frac{3 \times 2}{2 \times 2} \rightarrow -\frac{3}{4} + \frac{6}{4}$$

$$\frac{-3+6}{4} = \frac{3}{4}$$

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B.  $2\frac{5}{8} - (-\frac{2}{5})$

$\frac{5 \times 21}{5 \times 8} - \left( \frac{-2 \times 8}{5 \times 8} \right)$

$\frac{105}{40} - \left( \frac{-16}{40} \right) \rightarrow \frac{105}{40} + \frac{16}{40}$

$\frac{105 + 16}{40} = \frac{121}{40}$

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C.  $-3\frac{1}{2} - \frac{4}{7}$

$\frac{7 \times -7}{7 \times 2} - \frac{4 \times 2}{7 \times 2} \rightarrow \frac{-49}{14} - \frac{8}{14}$

$\frac{-49}{14} + \frac{-8}{14} \rightarrow \frac{-49 + -8}{14} = \frac{-57}{14}$

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D.  $\frac{12}{9} - \frac{9}{10}$

$$\frac{10 \times 2}{10 \times 3} - \frac{9 \times 3}{10 \times 3} \rightarrow \frac{20}{30} - \frac{27}{30} \rightarrow \frac{20}{30} + \frac{-27}{30} = \frac{20 + -27}{30} = \frac{-7}{30}$$


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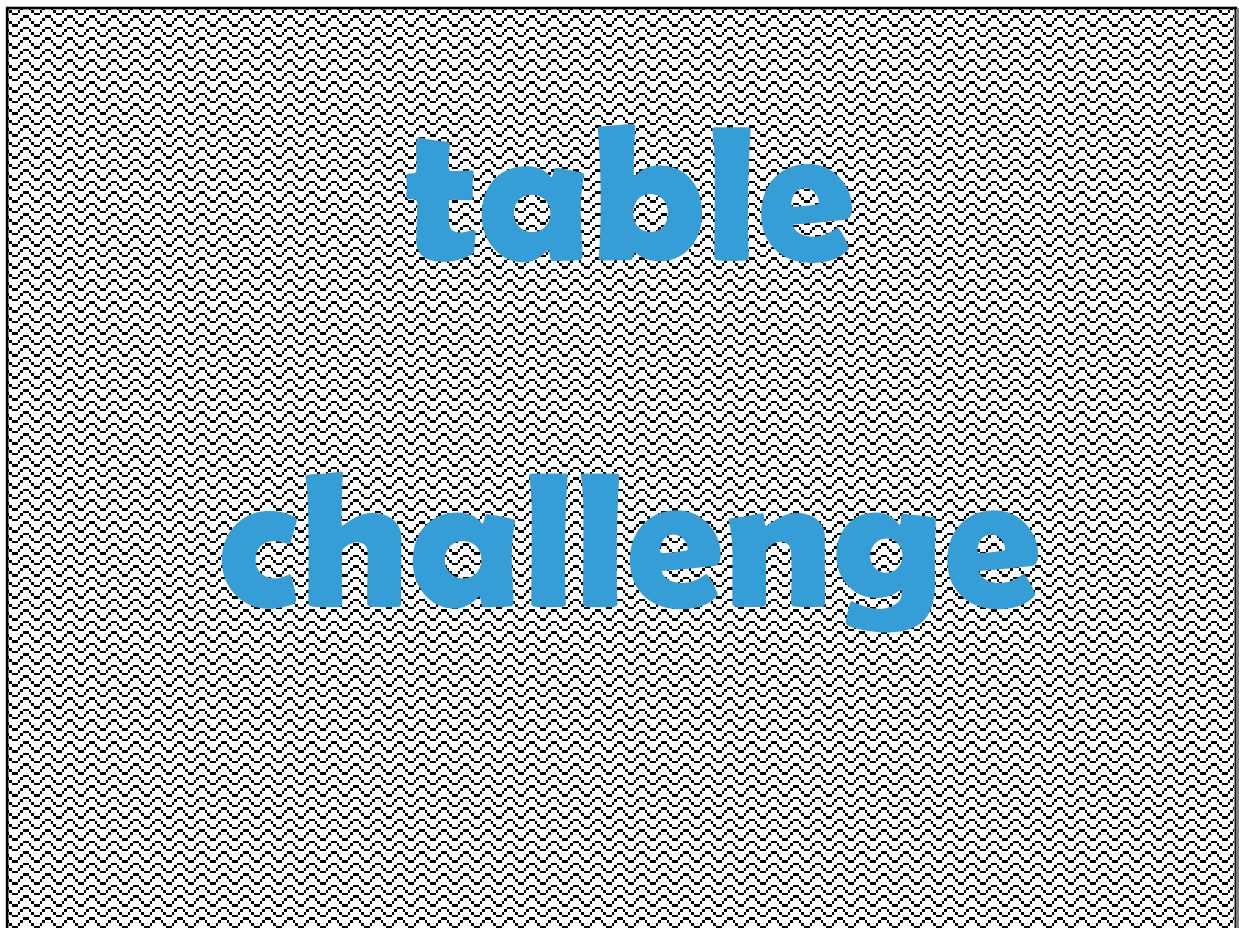
E.  $3\frac{5}{6} - 3\frac{1}{12}$

$$\frac{2 \times 5}{2 \times 6} - \frac{37}{12}$$

$$\frac{10}{12} - \frac{37}{12} \rightarrow \frac{10}{12} + \frac{-37}{12} \rightarrow \frac{10 + -37}{12} = \frac{-27}{12}$$

3  $\frac{36+1}{12}$   
x

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1.

$$\frac{2 \times 2}{2 \times 5} - \left( -\frac{3}{10} \right)$$

$$\frac{4}{10} - \left( -\frac{3}{10} \right) \rightarrow \frac{4}{10} + \frac{3}{10} \rightarrow \frac{4+3}{10} = \boxed{\frac{7}{10}}$$

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2.

$$\begin{array}{c} 12+1 \\ -3\frac{1}{4} \\ \uparrow \\ \times \end{array} + \begin{array}{c} 6+2 \\ 2\frac{2}{3} \\ \uparrow \\ \times \end{array}$$

$$\frac{3 \times -13}{3 \times 4} + \frac{8 \times 4}{3 \times 4} \rightarrow \frac{-39}{12} + \frac{32}{12} \rightarrow \boxed{\frac{-7}{12}}$$

$$\begin{array}{r} 13 \\ 3 \\ \hline 39 \end{array}$$

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3.

$$\frac{5}{6} - 2\frac{2}{3}$$

$$\frac{5}{6} - \frac{8 \times 2}{3 \times 2} \rightarrow \frac{5}{6} - \frac{16}{6} \rightarrow \frac{5}{6} + \frac{-16}{6}$$

$$\frac{5 + -16}{6} = \frac{-11}{6}$$

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4.

$$-4\frac{5}{6} - \frac{1}{3}$$

$$\frac{29}{6} - \frac{1 \times 2}{3 \times 2} \rightarrow \frac{29}{6} - \frac{2}{6} \rightarrow \frac{29}{6} + \frac{-2}{6}$$

$$\frac{29 + -2}{6} = \frac{27}{6}$$

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5.

$$\frac{3}{8} - 1\frac{1}{2}$$

$$\frac{3}{8} - \frac{3 \times 4}{2 \times 4} \rightarrow \frac{3}{8} - \frac{12}{8} \rightarrow \frac{3}{8} + \frac{-12}{8}$$

$$\frac{3 + -12}{8} = \boxed{\frac{-9}{8}}$$

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6.

$$\frac{3 \times 3}{3 \times 8} + \left( \frac{-2 \times 8}{3 \times 8} \right)$$

$$\frac{9}{24} + \frac{-16}{24} \rightarrow \frac{9 + -16}{24} = \boxed{\frac{-7}{24}}$$

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7.

$$4\frac{1}{2} + \left(-\frac{2}{3}\right)$$

$$\frac{3 \times 9}{3 \times 2} + \frac{-2 \times 2}{3 \times 2} \rightarrow \frac{27}{6} + \frac{-4}{6} \rightarrow \frac{27 + -4}{6}$$

$$= \frac{23}{6}$$

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8.

$$-2\frac{1}{4} + \left(-3\frac{1}{2}\right)$$

$$\frac{-9}{4} + \frac{-7 \times 2}{2 \times 2} \rightarrow \frac{-9}{4} + \frac{-14}{4} \rightarrow \frac{-9 + -14}{4}$$

$$= \boxed{\frac{-23}{4}}$$

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# SUMMARY

Complete on the back of your opener, and turn in on your way out.

$$-\frac{2}{3} - 1\frac{1}{4}$$

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Nov 19-3:06 PM