

Adding and Subtracting Rational Numbers

(Pages 100–103)

To add or subtract rational numbers, use the same rules you used to add or subtract integers. When you are adding three or more rational numbers, you can use the commutative and associative properties to rearrange the addends.

EXAMPLES

A Find $-3\frac{3}{4} + 2\frac{5}{8}$.

$$\begin{aligned} -3\frac{3}{4} + 2\frac{5}{8} &= -3\frac{6}{8} + 2\frac{5}{8} && \text{The LCD is 8.} \\ &= -\left(\left| -3\frac{6}{8} \right| - \left| 2\frac{5}{8} \right| \right) && \text{The sum is} \\ & && \text{negative.} \\ &= -\left(3\frac{6}{8} - 2\frac{5}{8}\right) \\ &= -1\frac{1}{8} && \text{Subtract absolute} \\ & && \text{values.} \end{aligned}$$

B Find $-3.6 - (-5.9)$.

$$\begin{aligned} -3.6 - (-5.9) &= -3.6 + 5.9 && \text{To subtract } -5.9, \\ & && \text{add its opposite,} \\ & && \text{5.9.} \\ &= +(5.9 - 3.6) \\ &= 2.3 \end{aligned}$$

Try These Together

1. Find $-\frac{3}{7} + \left(-\frac{1}{2}\right)$.

HINT: The LCD is 14, and the numbers have the same sign.

2. Find $5.2 + (-8.3) + 4.6$.

HINT: Add 5.2 and 4.6 first.

PRACTICE

Find each sum or difference.

3. $4 + (-0.75) + (-0.8)$

4. $-\frac{3}{4} - \left(-\frac{1}{6}\right)$

5. $4.18 + (-9.16)$

6. $-9\frac{5}{6} + 2\frac{3}{4}$

7. $-\frac{7}{8} + \left(-\frac{2}{5}\right)$

8. $\frac{1}{6} + \left(-\frac{3}{4}\right) + 2$

9. $-62.5 - 89.3$

10. $-1\frac{7}{10} + 3\frac{4}{5} - 2$

11. $4.8 - 2.9 + 0.6$

12. $\frac{7}{11} - \left(-\frac{4}{11}\right)$

13. $-\frac{3}{4} - \frac{3}{5} + \frac{3}{2}$

14. $-0.63 + 1.9 + (-0.41)$

Evaluate each expression, if $a = -0.7$, $b = 1.35$, $c = -\frac{4}{5}$, and $d = \frac{1}{4}$.

15. $a - 1.8$

16. $c + d$

17. $b + a$

18. $d - c$



19. **Standardized Test Practice** Simplify $-\frac{11}{12} - \left(-\frac{1}{2}\right) + \frac{7}{36}$.

A $-\frac{2}{9}$

B $-\frac{3}{50}$

C $\frac{11}{18}$

D $-\frac{1}{12}$

Answers: 1. $-\frac{14}{13}$ 2. 1.5 3. 2.45 4. $-\frac{12}{7}$ 5. -4.98 6. $-7\frac{1}{12}$ 7. $-1\frac{40}{11}$ 8. $1\frac{12}{5}$ 9. -151.8 10. $\frac{10}{1}$ 11. 2.5 12. 1 13. $\frac{20}{3}$ 14. 0.86 15. -2.5 16. $-\frac{20}{11}$ 17. 0.65 18. $1\frac{20}{1}$ 19. A