

WORKSHEET 2.9: SUBTRACTING RATIONAL NUMBERS

Follow the steps below to subtract positive and negative rational numbers:

1. Rewrite the problem by adding the opposite of the number after the subtraction sign.
2. Express any mixed or whole numbers as improper fractions.
3. Rewrite any negative fractions so that the denominators are positive.
4. Find the least common denominator and write equivalent fractions.
5. Add numerators, following the rules for adding integers.
6. Write the sum over the denominator.
7. Simplify the answer.

EXAMPLE

$$2\frac{1}{8} - 3\frac{4}{5} = 2\frac{1}{8} + \left(-3\frac{4}{5}\right) = \frac{17}{8} + \frac{-19}{5} = \frac{85}{40} + \frac{-152}{40} = \frac{-67}{40} = -1\frac{27}{40}$$

DIRECTIONS: Find the difference.

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

2. $\frac{1}{3} - \left(-\frac{5}{8}\right)$

3. $-4\frac{3}{10} - \left(-7\frac{1}{4}\right)$

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

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

6. $\frac{1}{4} - \frac{3}{8}$

7. $4\frac{3}{4} - \left(-\frac{6}{7}\right)$

8. $-1\frac{4}{5} - \frac{3}{4}$

9. $-\frac{9}{10} - 1\frac{3}{4}$

10. $\frac{12}{13} - \left(-\frac{5}{6}\right)$



CHALLENGE: Write a subtraction problem with rational numbers that can be rewritten so that two negative rational numbers are added. Then solve your problem.

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EXAMPLE

$$2\frac{1}{8} - 3\frac{4}{5} = 2\frac{1}{8} + \left(-3\frac{4}{5}\right) = \frac{17}{8} + \frac{-19}{5} = \frac{85}{40} + \frac{-152}{40} = \frac{-67}{40} = -1\frac{27}{40}$$

DIRECTIONS: Find the difference.

1. $\frac{1}{4} - \frac{3}{5} = -\frac{17}{20}$

2. $\frac{1}{3} - \left(-\frac{5}{8}\right) = \frac{23}{24}$

3. $-4\frac{3}{10} - \left(-7\frac{1}{4}\right) = 2\frac{19}{20}$ OR $\frac{59}{20}$

4. $3 - 7\frac{1}{5} = -4\frac{1}{5}$ OR $-\frac{21}{5}$

5. $4\frac{3}{4} - 5\frac{1}{4} = -\frac{1}{2}$

6. $\frac{1}{4} - \frac{3}{8} = -\frac{1}{8}$

7. $4\frac{3}{4} - \left(-\frac{6}{7}\right) = 5\frac{17}{28}$ OR $\frac{157}{28}$

8. $-1\frac{4}{5} - \frac{3}{4} = -2\frac{11}{20}$ OR $-\frac{51}{20}$

9. $-\frac{9}{10} - 1\frac{3}{4} = -2\frac{13}{20}$ OR $-\frac{53}{20}$

10. $\frac{12}{13} - \left(-\frac{5}{6}\right) = 1\frac{59}{78}$ OR $\frac{137}{78}$



CHALLENGE: Write a subtraction problem with rational numbers that can be rewritten so that two negative rational numbers are added. Then solve your problem.

Possible answer $-2\frac{1}{3} - 5\frac{1}{2}$
 $-2\frac{1}{3} + (-5\frac{1}{2}) = -7\frac{5}{6}$