

Objective 13

Subtract signed fractions or mixed numbers

PROBLEM

$$-2\frac{2}{9} - \left(-2\frac{5}{8}\right) =$$

STEP 1

Write the mixed numbers as improper fractions.

$$-2\frac{2}{9} = -\frac{18+2}{9} = -\frac{20}{9} \qquad -2\frac{5}{8} = -\frac{16+5}{8} = -\frac{21}{8}$$

STEP 2

Replace the mixed numbers in the problem with their equivalent improper fractions.

$$-2\frac{2}{9} - \left(-2\frac{5}{8}\right) = -\frac{20}{9} - \left(-\frac{21}{8}\right)$$

STEP 3

Rewrite the improper fractions using a common denominator. The least common multiple of the denominators 8 and 9 is 72.

$$\begin{aligned} -\frac{20}{9} - \left(-\frac{21}{8}\right) &= -\frac{20}{9} \cdot \left(\frac{8}{8}\right) - \left(-\frac{21}{8}\right) \cdot \left(\frac{9}{9}\right) \\ &= -\frac{20 \cdot 8}{9 \cdot 8} - \left(-\frac{21 \cdot 9}{8 \cdot 9}\right) \\ &= -\frac{160}{72} - \left(-\frac{189}{72}\right) \end{aligned}$$

STEP 4

Evaluate the expression. Recall that subtracting a negative number is the same as adding the opposite of the number.

$$\begin{aligned} -\frac{160}{72} - \left(-\frac{189}{72}\right) &= -\frac{160}{72} + \frac{189}{72} \\ &= \frac{-160 + 189}{72} \\ &= \frac{29}{72} \end{aligned}$$

ANSWER

$$\frac{29}{72}$$

Independent Practice:

$$\frac{11}{12} - \frac{1}{2} = \quad [A] \quad \frac{5}{12} \qquad [B] \quad -\frac{5}{12} \qquad [C] \quad 1\frac{5}{12} \qquad [D] \quad -1\frac{5}{12}$$

$$\frac{1}{12} - \left(-\frac{2}{3}\right) =$$

(Simplify the answer if possible.)

$$-2\frac{1}{5} - 3\frac{3}{4} = \quad [A] \quad 5\frac{19}{20} \qquad [B] \quad -1\frac{11}{20} \qquad [C] \quad -5\frac{19}{20} \qquad [D] \quad 1\frac{11}{20}$$

$$-1\frac{2}{3} - \left(-1\frac{9}{10}\right) =$$

(Simplify the answer if possible.)

Additional Help:

<http://www.mathgoodies.com/lessons/vol5/subtraction.html>

http://www.sheppardsoftware.com/mathgames/integers/FS_Integer_subtraction.htm

<https://www.ixl.com/math/grade-6/subtract-integers>

Guided Practice:

Add the following integers:

$$-3\frac{3}{4} - \left(-2\frac{5}{6}\right) =$$

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

$$-2\frac{2}{3} - \left(-1\frac{7}{8}\right) =$$