


Curriculum Outcome

N1: Demonstrate an understanding of rational numbers by: comparing and ordering rational numbers; solving problems that involve arithmetic operations on rational numbers.


Student Friendly:
"Subtracting Fractions and Subtracting Decimals"

Sep 7-2:50 PM



Grade 9

Warm Up



Determine each sum.

<p>1)</p> $\frac{-5}{6} + \left(\frac{-2}{5}\right)$ $= \frac{-25}{30} + \left(\frac{-12}{30}\right)$ $= \frac{-37}{30}$ $= -1\frac{7}{30}$	<p>2)</p> $\frac{8}{3} + \frac{5}{4}$ $= \frac{32}{12} + \frac{15}{12}$ $= \frac{47}{12}$ $= 3\frac{11}{12}$	<p>3)</p> $-1\frac{2}{3} + \left(3\frac{1}{5}\right)$ $= \frac{-5}{3} + \left(\frac{16}{5}\right)$ $= \frac{-25}{15} + \left(\frac{48}{15}\right)$ $= \frac{23}{15}$ $= 1\frac{8}{15}$
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Section 3.3

Subtracting Rational Numbers

When subtracting Rational Numbers you must have a ...

Common Denominator

Ex) $\frac{13}{7} - \frac{4}{7} = \frac{9}{7}$

Same Denominators

This look similar to adding Rational Numbers



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You try ...

(Remember to write all solution in simplest form)

1)

$$\frac{21}{2} - \frac{24}{2} = -\frac{3}{2}$$

2)

$$\frac{-25}{13} - \frac{16}{13} = -\frac{41}{13}$$

3)

$$\frac{11}{4} - \frac{5}{4} = \frac{6}{4} = \frac{3}{2}$$

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When denominators are different you have to find a **"common denominator"**

How

By determining the **LCM**

Lowest Common Multiple
(of the denominators)

This block contains a cartoon illustration of a boy with glasses and a red jacket running while holding a sign that says "LCM". To the right of the boy, there is text explaining the concept of finding a common denominator. The text reads: "When denominators are different you have to find a **'common denominator'**". Below this, it asks "How" and shows a cartoon question mark character. The answer is given as "By determining the **LCM**", where LCM stands for "Lowest Common Multiple (of the denominators)".

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Subtracting Negative Numbers

$8 - (-2)$ \longrightarrow We add the opposite: $8 + 2 = 10$

No difference with rational numbers

$\frac{6}{5} - (-\frac{10}{5})$ \longrightarrow We add the opposite: $\frac{6}{5} + \frac{10}{5} = \frac{16}{5}$

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Subtract the following rational numbers



Look at the multiples of each denominator
Find the LCM

$$\begin{array}{r} \frac{13}{7} - \frac{4}{3} \\ \hline \frac{39}{21} - \frac{28}{21} \\ \hline \frac{11}{21} \end{array}$$

(Handwritten annotations: 'x3' with an arrow pointing to 39/21, 'x7' with an arrow pointing to 28/21, and '7' and '3' written in red next to the original denominators)

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You try...



$$\begin{aligned}
 1) \quad & \frac{17}{12} - \frac{4}{9} \\
 & \xrightarrow{\times 3} \frac{51}{36} - \frac{16}{36} \xrightarrow{\times 4} \\
 & = \frac{35}{36}
 \end{aligned}$$

$$\begin{aligned}
 2) \quad & \frac{-2}{7} - \frac{5}{28} \\
 & = \frac{-8}{28} - \frac{5}{28} \\
 & = \frac{-13}{28}
 \end{aligned}$$

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Subtracting Rational Numbers in Mixed Number Form

$$3\frac{1}{5} - 2\frac{7}{10} \quad \text{Option 1}$$

STEP 1) Write each mixed number as an improper fraction

$$= \frac{16}{5} - \frac{27}{10}$$

STEP 2) Find common denominators and then subtract like before

$$= \frac{32}{10} - \frac{27}{10}$$

$$= \frac{5}{10}$$

STEP 3) Reduce all fractions

$$= \frac{1}{2}$$

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Your Turn



$$\begin{aligned} 1) \quad & -2\frac{2}{9} - \left(-3\frac{1}{3}\right) \\ & = \frac{-20}{9} - \left(\frac{-10}{3}\right) \\ & = \frac{-20}{9} + \frac{30}{9} \\ & = \frac{10}{9} \\ & = 1\frac{1}{9} \end{aligned}$$

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Your Turn



$$\begin{aligned} 2) \quad & 6\frac{1}{2} - 3\frac{1}{7} \\ & = \frac{13}{2} - \frac{22}{7} \\ & = \frac{91}{14} - \frac{44}{14} \\ & = \frac{47}{14} \\ & = 3\frac{5}{14} \end{aligned}$$

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$$\begin{aligned} 3) \quad & 2\frac{1}{5} - 5 + \frac{2}{3} \\ & = \frac{11}{5} - \frac{5}{1} + \frac{2}{3} \\ & = \frac{33}{15} - \frac{75}{15} + \frac{10}{15} \\ & = \frac{-42}{15} + \frac{10}{15} \\ & = \frac{-32}{15} \\ & = -2\frac{2}{15} \end{aligned}$$

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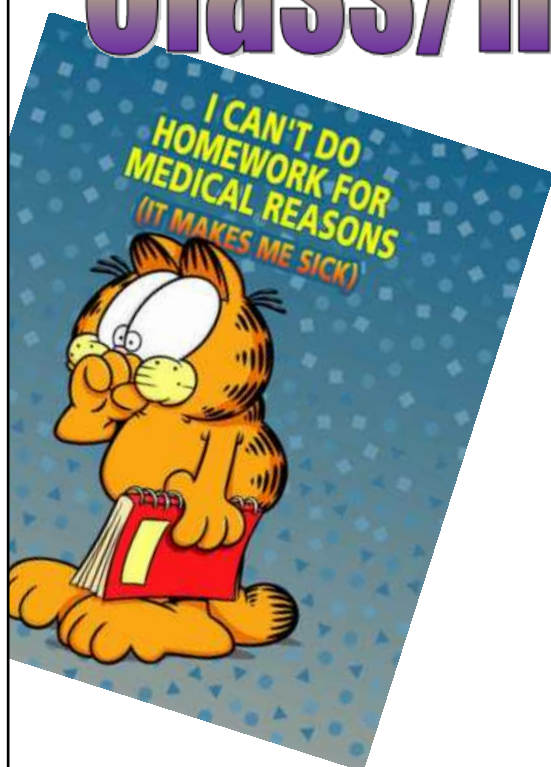
Must work with fractions when
the question has all fractions



Now it is time
for Home
Learning

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Class/Homework



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9, 11,13cd, 15ab

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