

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”



Grade 9 Warm Up



Determine each sum.

1)

$$\frac{-5}{6} + \left(\frac{-2}{5}\right)$$

2)

$$\frac{8}{3} + \frac{5}{4}$$

3)

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



Grade 9 Warm Up



Determine each sum.

1)

$$\begin{aligned} & \frac{-5}{6} + \left(\frac{-2}{5} \right) \\ &= \frac{-25}{30} + \left(\frac{-12}{30} \right) \\ &= \frac{-37}{30} \\ &= -1 \frac{7}{30} \end{aligned}$$

2)

$$\begin{aligned} & \frac{8}{3} + \frac{5}{4} \\ &= \frac{32}{12} + \frac{15}{12} \\ &= \frac{47}{12} \\ &= 3 \frac{11}{12} \end{aligned}$$

3)

$$\begin{aligned} & -1 \frac{2}{3} + \left(3 \frac{1}{5} \right) \\ &= \frac{-5}{3} + \left(\frac{16}{5} \right) \\ &= \frac{-25}{15} + \left(\frac{48}{15} \right) \\ &= \frac{23}{15} \\ &= 1 \frac{8}{15} \end{aligned}$$

Section 3.3

Subtracting Rational Numbers

When subtracting Rational Numbers you must have a ...

Common Denominator

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

Same Denominators

This look similar to adding Rational Numbers



You try ... (Remember to write all solution in simplest form)

$$1) \quad \frac{21}{2} - \frac{24}{2}$$

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

$$2) \quad \frac{-25}{13} - \frac{16}{13}$$

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

Subtracting Negative Numbers

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

No difference with rational numbers

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

Oh, what to do when the denominators are different???



I Know this one!!!!





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



How

By determining the **LCM**

Lowest Common Multiple
(of the denominators)

Subtract the following rational numbers



Look at the multiples of each denominator

Find the LCM

$$\frac{13}{7} - \frac{4}{3}$$

7

3

$$\frac{39}{21} - \frac{28}{21}$$

$$\frac{11}{21}$$

You try...



$$1) \quad \frac{17}{12} - \frac{-4}{9}$$

$$= \frac{51}{36} - \frac{-16}{36}$$

$$= \frac{67}{36}$$

$$2) \quad \frac{-2}{7} - \frac{5}{28}$$

$$= \frac{-8}{28} - \frac{5}{28}$$

$$= \frac{-13}{28}$$

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

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

Your Turn

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



Your Turn



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

$$3) \quad 2\frac{1}{5} - 5 + \frac{2}{3}$$

$$= \frac{11}{5} - \frac{5}{1} + \frac{2}{3}$$

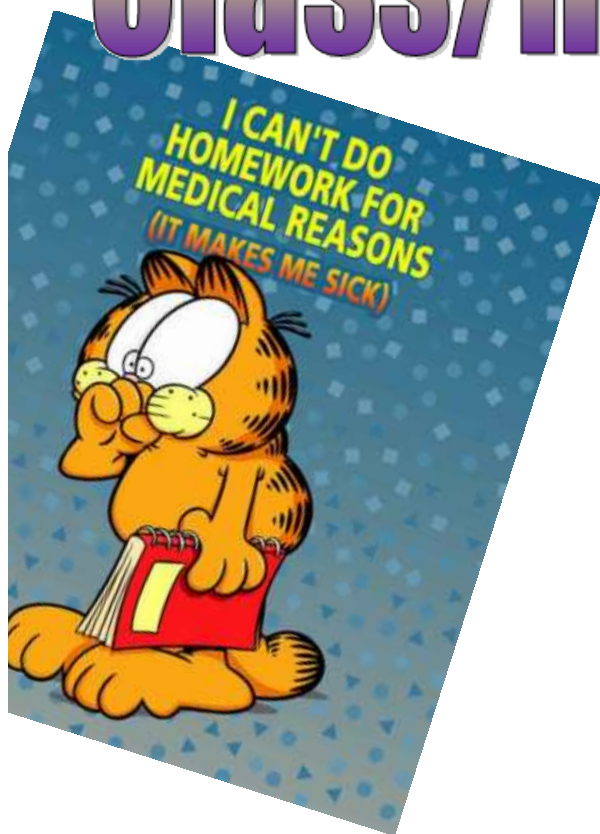
$$= \frac{33}{15} - \frac{75}{15} + \frac{10}{15}$$

$$= \frac{-42}{15} + \frac{10}{15}$$

$$= \frac{-32}{15}$$

$$= -2\frac{2}{15}$$

Class/Homework



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5, 6 , 7, 8

9, 11,13cd, 15ab