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

$= \frac{-25}{30} + \left(\frac{-12}{30}\right)$

$= \frac{-37}{30}$

$= -1\frac{7}{30}$

2) $\frac{8}{3} + \frac{5}{4}$ (×4, ×3)

$= \frac{32}{12} + \frac{15}{12}$

$= \frac{47}{12}$

$= 3\frac{11}{12}$

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

$= \frac{-5}{3} + \left(\frac{16}{5}\right)$ (×5, ×3)

$= \frac{-25}{15} + \left(\frac{48}{15}\right)$

$= \frac{23}{15}$

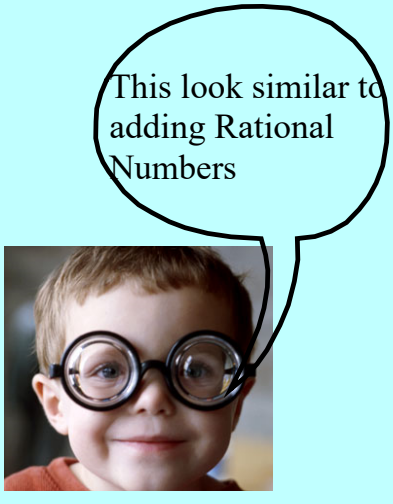
$= 1\frac{8}{15}$

Section 3.3

Subtracting Rational Numbers

When subtracting Rational Numbers you must have a ...

Common Denominator



Ex) $\frac{13}{7} - \frac{4}{7} = \frac{9}{7}$ or $1\frac{2}{7}$

Same Denominators

You try ...

(Remember to write all solution in simplest form)

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

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

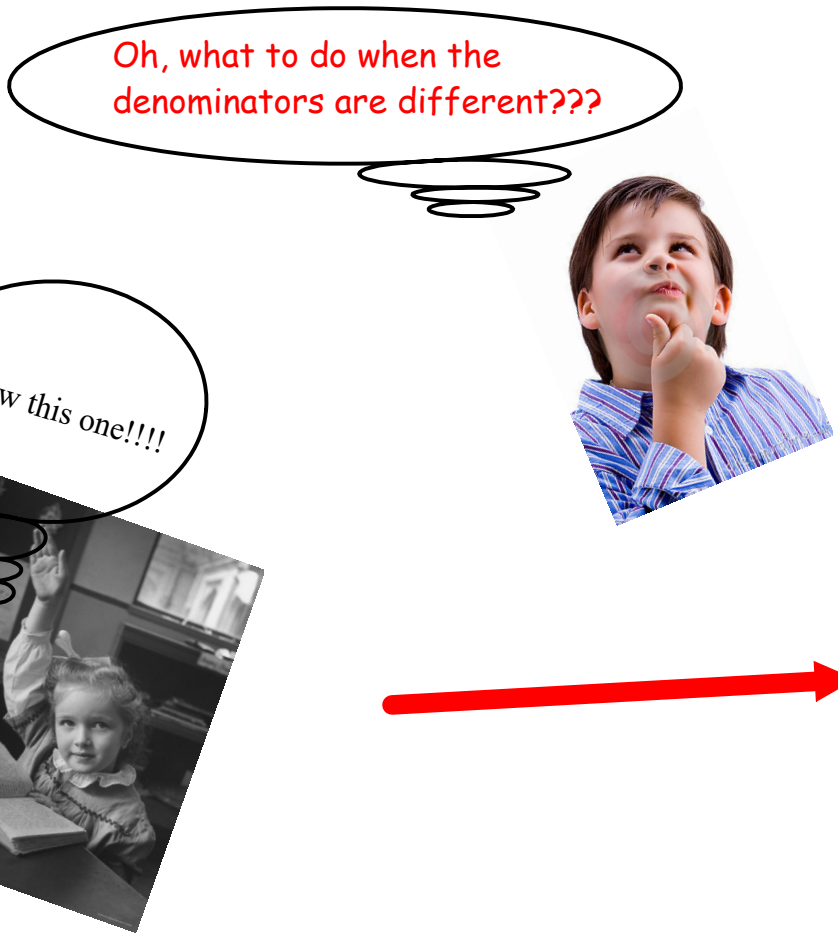
2) $\frac{-25}{13} - \frac{16}{13}$

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

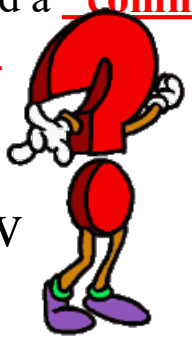
3) $\frac{11}{4} - \frac{5}{4}$

$= \frac{6}{4}$

$= \frac{3}{2}$



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



How

By determining the LCM

Lowest Common Multiple

(of the denominators)

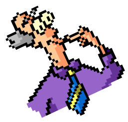
Subtracting Negative Numbers

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

No difference with rational numbers

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

Subtract the following rational numbers



Look at the multiples of each denominator

Find the LCM

$$\frac{13^{\times 3}}{7_{\times 3}} - \frac{4^{\times 7}}{3^{\times 7}}$$

7 3

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

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

You try...

1) $\frac{17^{\times 3}}{12^{\times 3}} - \frac{4^{\times 4}}{9^{\times 4}}$

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

$= \frac{35}{36}$

2) $\frac{-2^{\times 4}}{7^{\times 4}} - \frac{5}{28}$

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

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

Subtracting Rational Numbers in Mixed Number Form

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

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

$= \frac{-20}{9} - \left(\frac{-10}{3}\right)$

$= \frac{-20}{9} + \frac{30}{9}$

$= \frac{10}{9}$

$= 1\frac{1}{9}$

Your Turn

2) $6\frac{1}{2} - 3\frac{1}{7}$

$= \frac{13^{x7}}{2_{x7}} - \frac{22^{x2}}{7_{x2}}$

$= \frac{91}{14} - \frac{44}{14}$

$= \frac{47}{14}$

$= 3\frac{5}{14}$

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

$= \frac{11^{x3}}{5_{x3}} - \frac{5}{1} + \frac{2 \times 5}{3 \times 5}$

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

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

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

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

Must work with fractions when the question has all fractions

Now it is time for Home Learning

Class/Homework

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5, 6 , 7, 8

9, 11,13cd, 15ab