

Lesson 9: Subtracting Fractions Oct 18, 2022

• same denominators

ex.

$$\frac{4}{9} - \frac{1}{9}$$

$$\frac{4}{9} + \left(-\frac{1}{9}\right)$$

$$\frac{4 + (-1)}{9}$$

$$\frac{3}{9} \begin{matrix} \div 3 \\ \div 3 \end{matrix}$$

$$\frac{1}{3}$$

Recall: Integers

• law of signs for addition

(same for rational numbers, like fractions)

+	+	=	+
-	-	=	-
+	-	=	same sign as "bigger #"

Step i: add/subtract tops and keep bottom



Step ii: Simplify if possible

different denominators

$$\frac{2}{4} \times \frac{3}{3} - \frac{2}{3} \times \frac{4}{4}$$

$$\frac{6}{12} - \frac{8}{12}$$

$$\frac{6 - 8}{12}$$

$$\frac{-2}{12}$$

÷ 2 ÷ 2

$$\frac{-1}{6}$$

step 1 Find common denominator (same as addition) = 12

e.g.

$$\frac{1}{1} \times \frac{4}{4} - \frac{3}{4}$$

proper fraction

part you have

whole broken up.

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

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

$$\frac{1}{4}$$

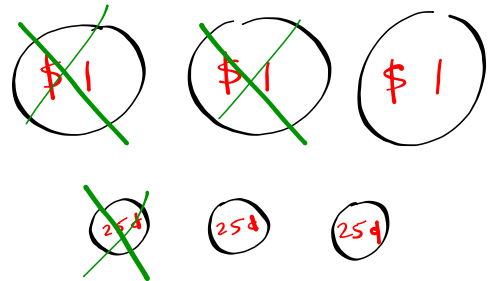
different denominators + mixed numbers

$$3 \frac{3}{4} - 2 \frac{1}{4}$$

$$3 - 2 + \left(\frac{3}{4} - \frac{1}{4} \right)$$

$$1 + \left(\frac{3-1}{4} \right)$$

$$1 \frac{2}{4}$$



check w calculator

you do question starting @ 10.7 while recalling key words for (-) like int book

How to know which operation?: **Key Words**

(same from Integer book)

e.x. → one-step operations

e.x. **x**
1/2 of students are boys. If there are 10 students, how many boys are there?

$$\frac{1}{2} \times 10 = 5$$

e.x. **÷**
How many 1/2 cm pieces can I make out of a 4cm piece of ribbon?

"splitting idea"
 $\frac{4}{1/2} = 8 \text{ pieces}$

e.x. **+**
 I want 1/2 a pie of cherry pie and a 1/4 pie of strawberry rhubarb!

How much pie do I want?
 $\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$

e.x. **-**
 If 1/2 of students are boys, what fraction of students are girls?



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

e.x. If 3/4 of my cousins are boys, what fraction are girls?

$$\frac{4}{4} - \frac{3}{4} = \frac{1}{4}$$

$$1 - \frac{3}{4} = \frac{1}{4}$$

↑ whole ↑ what remains

★ Embedded in a fraction is the notion of subtraction.

⇒ what you have + what remains

e.x. In the school B there are 600 girls.

Question 1: If your father spent $\frac{8}{10}$ of his wealth, what fraction of his wealth remains?

$$\frac{10}{10} - \frac{8}{10} = \frac{10-8}{10} = \frac{2}{10}$$

↑
whole

Bonus
his wealth
→ \$ 100 000
so how much \$ left?
 $\frac{2}{10}$ of → $\frac{2}{10} \times 100\,000$
\$ 20 000