



Concept: Subtracting Fractions

Name: _____

COMPUTER COMPONENT

Instructions: Select the computer program *Understanding Fractions* (Neufeld)
Follow the instructions to the Main Menu.
Select *Subtracting Fractions* from the Main Menu.



Work through all sections of this topic **in order**:

- *Pattern Blocks*
- *The Clock*
- *Fraction Strips*
- *Percent Strips*
- *Decimal Strips*
- *Subtracting Fractions on a Number Line*
- *The Lowest Common Denominator*
- *Word Problems*
- *Practice Questions*



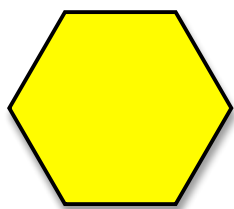
As you work through the computer exercises, make your own **NOTES** in the blanks provided.

When you reach the end of the section *Practice Questions* on the computer, move on to the **OFF COMPUTER EXERCISES** below.

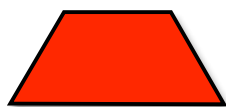
NOTES

1. Pattern blocks are a great tool to assist one in adding fractions.

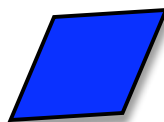
(a) Write the value of each pattern block below.



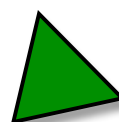
1 whole



$\frac{1}{2}$



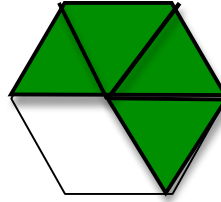
$\frac{1}{3}$



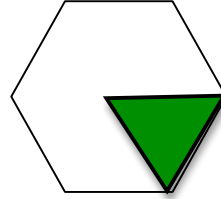
$\frac{1}{6}$

2. Use your knowledge from question 1 to assist you here.

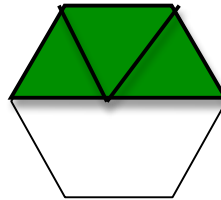
(a) Shade in $\frac{4}{6}$



(b) Shade in $\frac{1}{6}$



(c) Shade in the total of $\frac{4}{6} - \frac{1}{6}$



The result is : $\frac{3}{6} = \frac{1}{2}$

Subtracting Fractions Rules:

Rule 1:

When subtracting fractions, denominators must be the same.

Rule 2:

When denominators are the same, subtract the numerators.

Rule 3:

Make sure the difference is in lowest terms.

3. Fraction strips are also a great tool that you may use for subtracting fractions.

(a) Shade in the appropriate region on each strip.

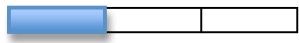


represents $\frac{1}{2}$

or

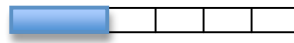


represents $\frac{3}{6}$



represents $\frac{1}{3}$

or



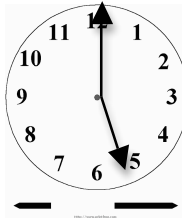
represents $\frac{2}{6}$

(b) Then $\frac{1}{2} - \frac{1}{3} = \frac{3}{6} - \frac{2}{6} = \frac{1}{6}$

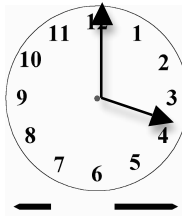
4. The clock also provides a nice visual for subtracting fractions.

Use your knowledge of clock hands to:

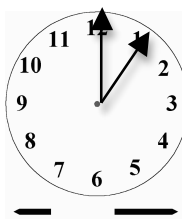
(a) Shade in $\frac{5}{12}$



(b) Shade in $\frac{1}{3}$



(c) Shade in the difference of $\frac{5}{12} - \frac{1}{3} =$



$\frac{1}{12}$

5. Establishing the Lowest Common Denominator is an example of a strategy used in subtraction of fractions.

Fill in the following rows of the multiplication table.

x	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

1	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

3	3	6	9	12	15	18	21	24	27
---	---	---	---	----	----	----	----	----	----

1	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

4	4	8	12	16	20	24	28	32	36
---	---	---	----	----	----	----	----	----	----

The Lowest Common Denominator (continued)

The lowest common denominator of $\frac{1}{3}$ and $\frac{1}{4}$ is 12.

$$\text{Therefore } \frac{1}{3} - \frac{1}{4} = \frac{4}{12} - \frac{3}{12} = \frac{4-3}{12} = \frac{1}{12}$$

OFF COMPUTER EXERCISES

- Review the three rules for subtracting fractions by re-writing them below.

Rule 1: When subtracting fractions, denominators must be the same.

Rule 2: When denominators are the same, subtract the numerators.

Rule 3: Make sure the difference is in lowest terms.



2. Apply your knowledge of the ‘subtraction of fractions’ to subtract the following.

$$(a) \frac{2}{5} - \frac{1}{5} = \frac{1}{5}$$

$$(b) \frac{8}{15} - \frac{3}{15} = \frac{5}{15} = \frac{1}{3}$$

$$(c) \frac{1}{2} - \frac{3}{10} = \frac{2}{10} - \frac{3}{10} = \frac{1}{5}$$

$$(d) \frac{17}{18} - \frac{1}{6} = \frac{17}{18} - \frac{3}{18} = \frac{14}{18} = \frac{7}{9}$$

$$(e) \frac{13}{20} - \frac{2}{5} = \frac{13}{20} - \frac{8}{20} = \frac{5}{20} = \frac{1}{4}$$

$$(f) \frac{1}{4} - \frac{1}{8} = \frac{2}{8} - \frac{1}{8} = \frac{1}{8}$$

$$(g) \frac{5}{6} - \frac{7}{9} = \frac{15}{18} - \frac{14}{18} = \frac{1}{18}$$

$$(h) \frac{7}{10} - \frac{2}{3} = \frac{21}{30} - \frac{20}{30} = \frac{1}{30}$$

3. Sam and Jacques order a large pizza. The pizza arrives cut into 15 pieces. Jacques eats $\frac{2}{5}$ of the pizza and Sam eats the rest. *How many pieces of pizza did Sam eat?*

First, we need to determine an equivalent fraction for $\frac{2}{5} = \frac{6}{15}$

Second, we determine how many Sam eats by subtracting what Jacques ate from the whole.

$$\frac{15}{15} - \frac{6}{15} = \frac{9}{15}$$

Sam eats 9 pieces.

4. Josie earns \$2 400.00 every two weeks as a fitness instructor. She has budgeted $\frac{2}{3}$ for living expenses and entertainment. She regularly deposits the remainder of the money in to her high-interest savings account. *How much money is deposited in to Josie’s savings account every two weeks?*

First, we need to determine an equivalent fraction for $\frac{2}{3} = \frac{?}{2400}$

$\frac{1600}{2400}$ is budgeted for living expenses and entertainment.

Second, we determine how much Josie saves by subtracting $\frac{1600}{2400}$ from the whole.

$$\frac{2400}{2400} - \frac{1600}{2400} = \frac{800}{2400}$$

\therefore \$800 is deposited in to Josie's account every 2 weeks.

5. Ricky gave $\frac{1}{4}$ of a pizza to his brother and another $\frac{1}{3}$ to his mother and $\frac{1}{4}$ to her father. *What fraction of the pizza did he leave for himself?*

First, we need to determine the lowest common denominator of $\frac{1}{4}, \frac{1}{3}$ and $\frac{1}{4}$

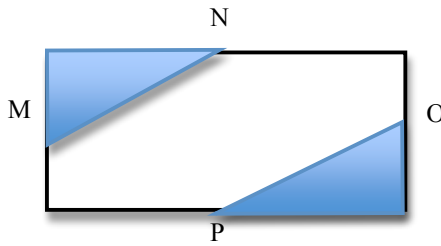
The lowest common denominator is 12.

$$\frac{1}{4} = \frac{3}{12} \quad \text{and} \quad \frac{1}{3} = \frac{4}{12} \quad \text{and} \quad \frac{1}{4} = \frac{3}{12}$$

Next, we need to subtract these portions from the whole.

$$\frac{12}{12} - \frac{3}{12} - \frac{4}{12} - \frac{3}{12} = \frac{1}{12} \text{ is left for himself.}$$

6. M, N, O and P are midpoints of the sides of the rectangle. *What fraction of the rectangle is **not** shaded?*



$$M, N + O, P = \frac{1}{8} + \frac{1}{8} = \frac{2}{8}$$

To find the fraction that is not shaded, we simply subtract $\frac{2}{8}$ from the whole.

$$\frac{8}{8} - \frac{2}{8} = \frac{6}{8} = \frac{3}{4}$$

$\frac{3}{4}$ is not shaded.

7. What two fractions might I subtract to get a answer of $\frac{3}{4}$?
How many different questions can you come up with?

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

(Additional responses will vary)

8. The answer to my subtraction question is $\frac{4}{7}$. *What might the question be?*

(Responses will vary)