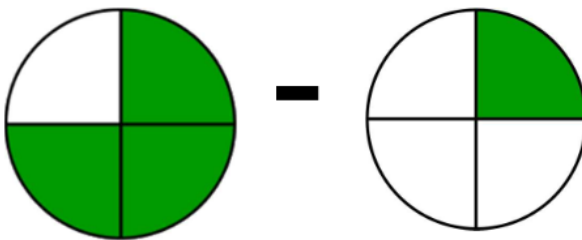


5.4 – Using Models to Subtract Fractions

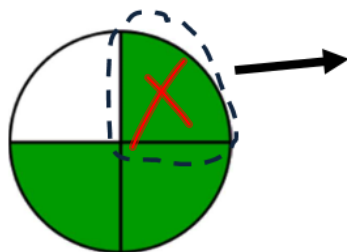
We subtract fractions the same way we add fractions, that is, we have to make sure our pieces are the same size.

If our denominators are the same, we simply subtract the numerators.

For example: $\frac{3}{4} - \frac{1}{4}$



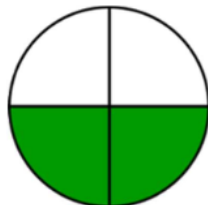
The diagram indicates that we need to take $\frac{1}{4}$ away from $\frac{3}{4}$.



Take away!!

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

Which leaves us with

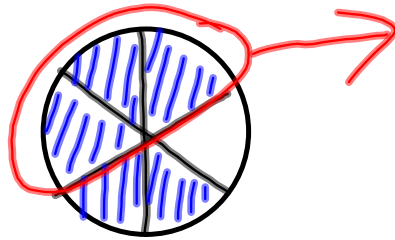


So, we can easily see that $\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$ or $\frac{1}{2}$

We can easily see that like with addition, the denominators stay the same. Only the numerators are subtracted.

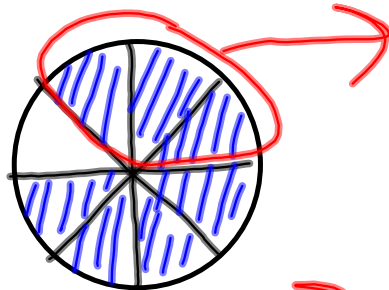
Example 1: Subtract the following using a model.

a) $\frac{5}{6} - \frac{3}{6}$



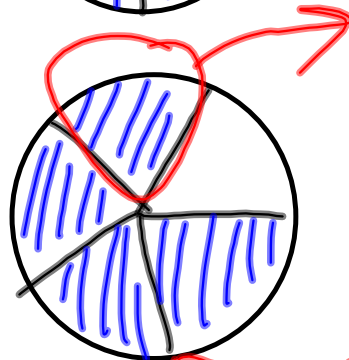
$\frac{2}{6}$ or $\frac{1}{3}$

b) $\frac{7}{8} - \frac{3}{8}$



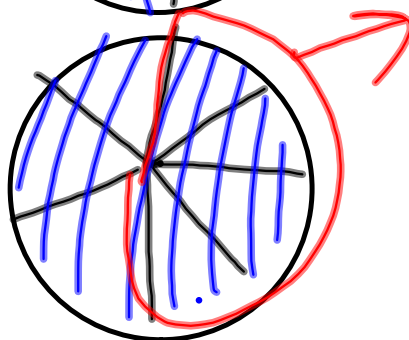
$\frac{4}{8}$ or $\frac{2}{4}$ or $\frac{1}{2}$ left.

c) $\frac{4}{5} - \frac{1}{5}$



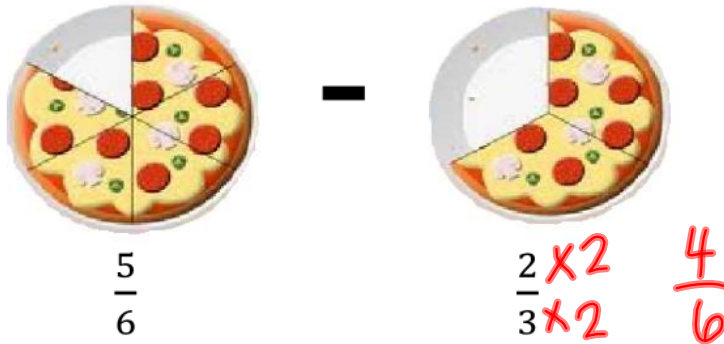
$\frac{3}{5}$ left

d) $1 - \frac{4}{7}$



$\frac{3}{7}$ left

Like when adding fractions, we need to make sure our denominators are the same; that is, we need to cut our pizzas into the same size pieces.

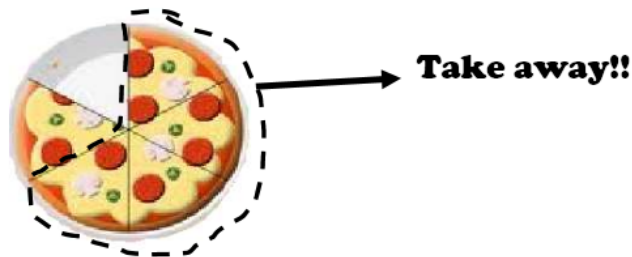


In this case, we need to cut the pieces so we have the same size pieces in each pizza.



Now we have $\frac{5}{6}$ and $\frac{4}{6}$

These pieces can now be subtracted because they are the same size (the denominators are the same).



We are left with one piece of pizza.

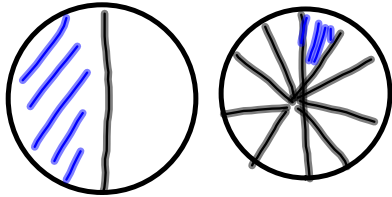
Thus, $\frac{5}{6} - \frac{4}{6} = \frac{1}{6}$

Grade 7 Mathematics

Unit 5: Operations with Fractions

Example 2: Subtract the following by using a model.

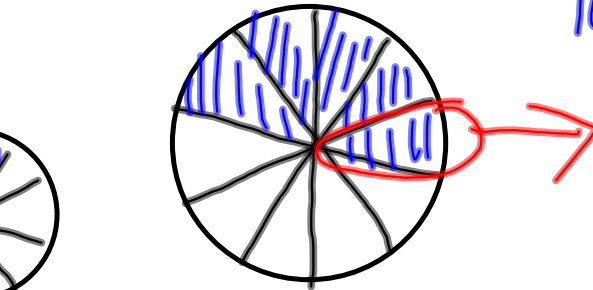
a) $\frac{1}{2} - \frac{1}{10}$



$\frac{5}{10} - \frac{1}{10}$

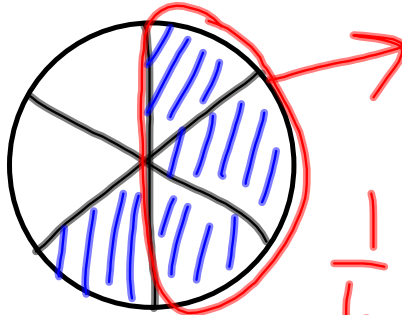
b) $\frac{2}{3} - \frac{1}{2}$

$\frac{4}{6} - \frac{3}{6}$



2 → 2, 4, 6, 8, 10
10 → 10

$\frac{4}{10}$ or $\frac{2}{5}$
left.



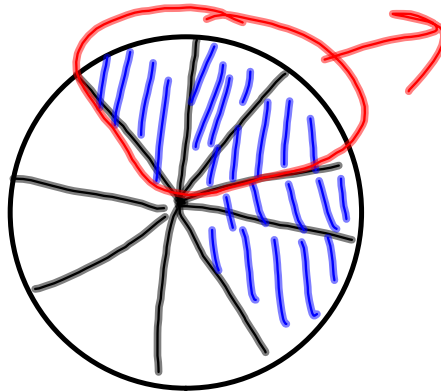
3, 6, 9, 12
2, 4, 6, 8

$\frac{1}{6}$ left.

c) $\frac{5}{9} - \frac{1}{3}$

→ $\frac{3}{9}$

9, 18, 27
3, 6, 9



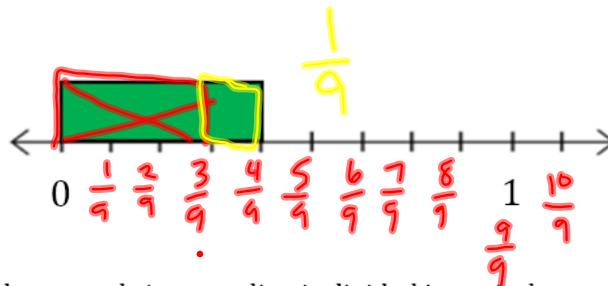
2 left.
 $\frac{2}{9}$

We can also use fraction strips to subtract fractions.

For example: $\frac{4}{9} - \frac{1}{3}$

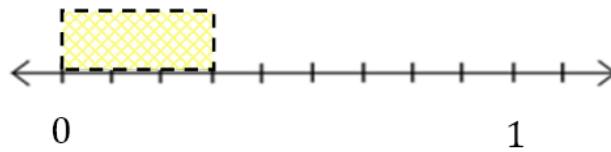
First, draw a number line divided into NINTHS since 9 is the lowest common denominator.

Shade $\frac{4}{9}$

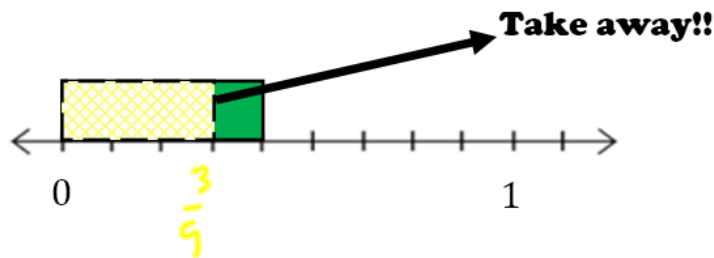


$\frac{1}{3}$ is the same as $\frac{3}{9}$, which we need since our line is divided into ninths.

This can be represented as follows.



We can now remove the $\frac{1}{3}$ or $\frac{3}{9}$ from the $\frac{4}{9}$

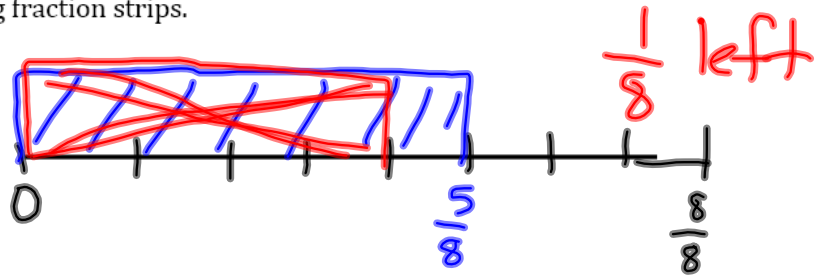


We can see that there is $\frac{1}{9}$ remaining. So our final equation is $\frac{4}{9} - \frac{1}{3} = \frac{1}{9}$

Example 3: Subtract using fraction strips.

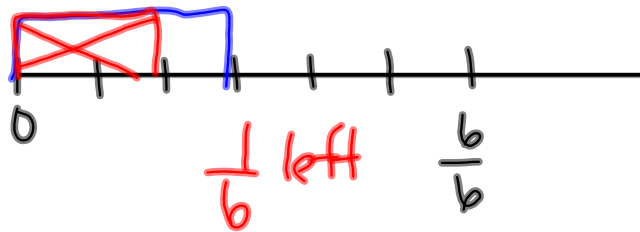
a) $\frac{5}{8} - \frac{1}{2}$

$\frac{4}{8}$



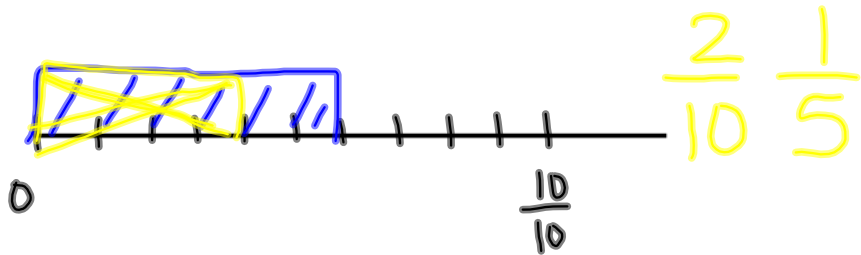
b) $\frac{3}{6} - \frac{1}{3}$

$\frac{3}{6} - \frac{2}{6} = \frac{1}{6}$



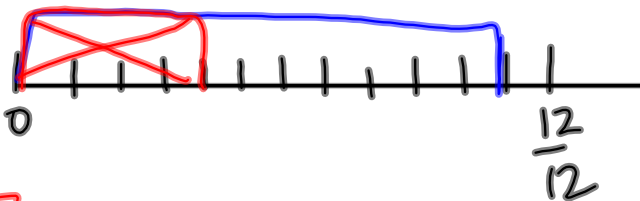
1
c) $\frac{6}{10} - \frac{2}{5}$

$\frac{6}{10} - \frac{4}{10}$



d) $\frac{11}{12} - \frac{1}{3}$

$\frac{11}{12} - \frac{4}{12} = \frac{7}{12}$



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#1,3