MAFS.5.NF.1.1

Least Common Denominators, Equivalent Fractions, Adding and Subtracting Mixed Numbers

- Add and subtract fractions with like and unlike denominators.
- Add and subtract fractions with mixed numbers.
- Know strategies to find like denominators and equivalent fractions.
- Be able to add fraction expressions with up to 3 addends.
- Understand the identity property of multiplication (multiplicative property of one) and how it is used to find equivalent fractions.

How can we find the common denominator without using fraction strips?

$$\frac{1}{2} + \frac{1}{3}$$

We can find the **Least Common Denominator** by finding the **Least Common Multiple** of the denominators.

How can we find the common denominator without using fraction strips?

$$\frac{1}{2} + \frac{1}{3}$$

First: Make a T chart and list the multiples.

	2	3
x 1	2	3
x 2	4	6
x 3	6	9

How can we find the common denominator without using fraction strips?

$$\frac{1}{2} + \frac{1}{3}$$

Second: Find the smallest (least) multiple that the denominators have in common.

	2	3
x 1	2	3
x 2	4	(6)
x 3	(6)	9

We have found the Least Common Denominator, now what?

$$\frac{1}{2} + \frac{1}{3}$$

	2	3
x 1	2	3
x 2	4	(6)
x 3	(6)	9

We have found the Least Common Denominator, now what?

$$\frac{1}{2} + \frac{1}{3}$$

We will use the Identity Property of Multiplication to make equivalent fractions with the common denominator.

	2	3
x 1	2	3
x 2	4	(6)
x 3	(6)	9

We have found the Least Common Denominator, now what?

$$\frac{1}{2} + \frac{1}{3}$$

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

Remember, 3/3 is equivalent to 1 whole.

x 1
x 2
x 3

2	3
2	3
4	6
6	9

We have found the Least Common Denominator, now what?

$$\frac{1}{2} + \frac{1}{3}$$

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

Remember, 2/2 is equivalent to 1 whole.

x 1

x 2

x 3

2	3
2	3
4	6
6	9

We can use the equivalent fractions to solve the problem.

$$\frac{3}{6} + \frac{2}{6}$$

1/2 is equivalent to 3/6.

1/3 is equivalent to 2/6.

	2	3
x 1	2	3
x 2	4	(6)
x 3	(6)	9

We can use the equivalent fractions to solve the problem.

$$\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$$

1/2 is equivalent to 3/6.

1/3 is equivalent to 2/6.

	2	3
x 1	2	3
x 2	4	(6)
x 3	(6)	9

Let's do another one!

$$\frac{3}{4} - \frac{1}{8}$$

Make your T chart in your notebook. What is the Least Common Denominator?

	4	8
x 1	4	(8)
x 2	(8)	16
x 3	12	24
x 4	16	32

Let’s do another one!

$$\frac{3}{4} - \frac{1}{8}$$

Use the Identity Property of Multiplication to find the equivalent fractions with the common denominator.

	4	8
x 1	4	(8)
x 2	(8)	16
x 3	12	24
x 4	16	32

Let’s do another one!

$$\frac{3}{4} - \frac{1}{8}$$

Use the Identity Property of Multiplication to find the equivalent fractions with the common denominator.

	4	8
x 1	4	(8)
x 2	(8)	16
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Let's do another one!

$$\frac{3}{4} - \frac{1}{8}$$

Use the Identity Property of Multiplication to find the equivalent fractions with the common denominator.

	4	8
x 1	4	(8)
x 2	(8)	16
x 3	12	24
x 4	16	32

Let's do another one!

$$\frac{3}{4} - \frac{1}{8}$$

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

Use the Identity Property of Multiplication to find the equivalent fractions with the common denominator.

	4	8
x 1	4	8
x 2	8	16
x 3	12	24
x 4	16	32

Let's do another one!

$$\frac{6}{8} - \frac{1}{8} =$$

3/4 is equivalent to 6/8.

Because 8 is our common denominator, 1/8 did not need to change.

	4	8
x 1	4	(8)
x 2	(8)	16
x 3	12	24
x 4	16	32

Let's do another one!

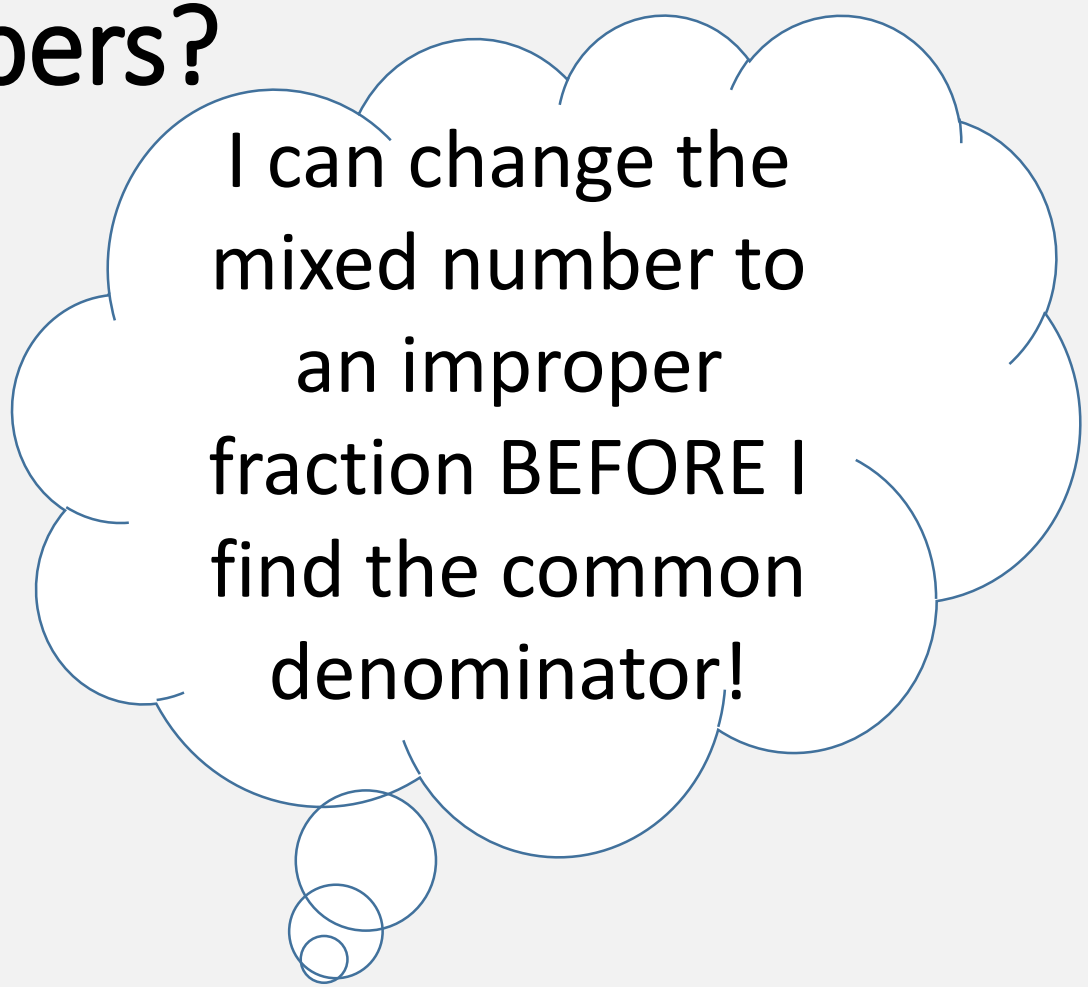
$$\frac{6}{8} - \frac{1}{8} = \frac{5}{8}$$

1/4 is equivalent to 6/8.

Because 8 is our common denominator, 1/8 did not need to change.

	4	8
x 1	4	(8)
x 2	(8)	16
x 3	12	24
x 4	16	32

What if I have mixed numbers?



What strategy have you already learned that would help you add and subtract mixed numbers with unlike denominators?

Good Thinking! Let's practice one!

$$5\frac{1}{4} + 2\frac{1}{6}$$

Solve the problem in your math notebook.

Good Thinking! Let's practice one!

$$5\frac{1}{4} + 2\frac{1}{6}$$

$$\frac{21}{4} + \frac{13}{6}$$

1st – Convert the mixed numbers to improper fractions.

$$\frac{21}{4} + \frac{13}{6}$$

2nd – Find the common denominator by finding the Least Common Multiple of the denominators.

	4	6
x 1	4	6
x 2	8	(12)
x 3	(12)	18
x 4	16	24

$$\frac{21}{4} + \frac{13}{6}$$

X X

$$\frac{3}{3} \quad \frac{2}{2}$$

= =

$$\frac{63}{12} + \frac{26}{12}$$

3rd – Use the Identity Property of Multiplication to make equivalent fractions with common denominators.

	4	6
x 1	4	6
x 2	8	(12)
x 3	(12)	18
x 4	16	24

4th – Add the improper fractions.

$$\frac{63}{12} + \frac{26}{12} = \frac{89}{12}$$

5th – Divide the numerator by the denominator to convert the improper fraction back to a mixed number.

$$\frac{63}{12} + \frac{26}{12} = \frac{89}{12}$$

$$12 \overline{)\,89} \quad 7$$

$$-84$$

$$5$$

And the answer is:

$$5\frac{1}{4} + 2\frac{1}{6} = 7\frac{5}{12}$$

Let’s Practice!

Open your Go Math! Book

Chapter 6, Lesson 6

Page 265