

## G5-M3-Lesson 9

1. First, make like units, and then add.

The denominators here are thirds and fifths. I can skip count to find a like unit.

3: 3, 6, 9, 12, **15**, 18, ...

5: 5, 10, **15**, 20, ...

15 is a multiple of both 3 and 5, so I can make like units of fifteenths.

I can multiply both the numerator and the denominator by 5 to rename  $\frac{1}{3}$  as a number of fifteenths.

$$\frac{1 \times 5}{3 \times 5} = \frac{5}{15}$$

$$\begin{aligned} \text{a. } \frac{1}{3} + \frac{2}{5} &= \left(\frac{1 \times 5}{3 \times 5}\right) + \left(\frac{2 \times 3}{5 \times 3}\right) \\ &= \frac{5}{15} + \frac{6}{15} \\ &= \frac{11}{15} \end{aligned}$$

I can multiply both the numerator and the denominator by 3 to rename  $\frac{2}{5}$  as a number of fifteenths.

$$\frac{2 \times 3}{5 \times 3} = \frac{6}{15}$$

5 fifteenths + 6 fifteenths = 11 fifteenths

The denominators here are sixths and eighths. I can skip count to find a like unit.

6: 6, 12, 18, 24, 30, ...

8: 8, 16, 24, 32, ...

24 is a multiple of both 6 and 8, so I can make like units of twenty-fourths.

I can multiply both the numerator and the denominator by 4 to rename  $\frac{5}{6}$  as a number of twenty-fourths.

$$\frac{5 \times 4}{6 \times 4} = \frac{20}{24}$$

$$\begin{aligned} \text{b. } \frac{5}{6} + \frac{3}{8} &= \left(\frac{5 \times 4}{6 \times 4}\right) + \left(\frac{3 \times 3}{8 \times 3}\right) \\ &= \frac{20}{24} + \frac{9}{24} \\ &= \frac{29}{24} \\ &= \frac{24}{24} + \frac{5}{24} \\ &= 1 \frac{5}{24} \end{aligned}$$

I can multiply both the numerator and the denominator by 3 to rename  $\frac{3}{8}$  as a number of twenty-fourths.

$$\frac{3 \times 3}{8 \times 3} = \frac{9}{24}$$

$\frac{29}{24}$  is the same as  $\frac{24}{24}$  plus  $\frac{5}{24}$ , or  $1 \frac{5}{24}$ .

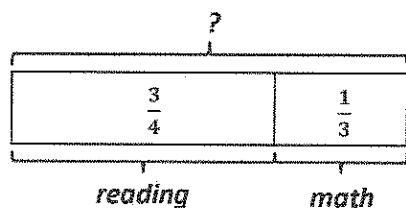
The like unit for ninths and halves is eighteenths.

$$\begin{aligned} \text{c. } \frac{4}{9} + 1 \frac{1}{2} &= \left(\frac{4 \times 2}{9 \times 2}\right) + \left(\frac{1 \times 9}{2 \times 9}\right) + 1 \\ &= \frac{8}{18} + \frac{9}{18} + 1 \\ &= \frac{17}{18} + 1 \\ &= 1 \frac{17}{18} \end{aligned}$$

I can add the 1 after adding the fractions.

$\frac{17}{18}$  plus 1 is the same as the mixed number  $1 \frac{17}{18}$ .

2. On Tuesday, Karol spent  $\frac{3}{4}$  of one hour on reading homework and  $\frac{1}{3}$  of one hour on math homework. How much time did Karol spend doing her reading and math homework on Tuesday?



I'll add the time she spent on reading and math to find the total time.

I can rename fourths and thirds as twelfths.

$$\frac{3 \times 3}{4 \times 3} = \frac{9}{12}$$

$$\frac{1 \times 4}{3 \times 4} = \frac{4}{12}$$

$$\begin{aligned} \frac{3}{4} + \frac{1}{3} &= \left( \frac{3 \times 3}{4 \times 3} \right) + \left( \frac{1 \times 4}{3 \times 4} \right) \\ &= \frac{9}{12} + \frac{4}{12} \\ &= \frac{13}{12} \\ &= 1 \frac{1}{12} \end{aligned}$$

9 twelfths + 4 twelfths = 13 twelfths, or  $1 \frac{1}{12}$ .

Karol spent  $1 \frac{1}{12}$  hours doing her reading and math homework.