

ADVANCED SUBTRACTING FRACTIONS

Your child must master operations with fractions because they are foundational for algebra.

Fractions must have the same denominator when subtracted.

After working through this Mathsheets, use these patterns to create more pizza questions using denominators like 3, 5, 6, etc.

A. If a group had $\frac{3}{4}$ of one pizza but ate only $\frac{1}{4}$ of it, how much would be left?

$$\begin{array}{|c|c|} \hline \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} \\ \hline \end{array} - \begin{array}{|c|c|} \hline \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} \\ \hline \end{array} = \frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \boxed{\frac{1}{2}}$$

Some fractions can be reduced to simpler equivalent fractions by dividing the numerator and the denominator by the same number. In this case, divide by 2.

NOTE: Substituting decimals for the above fractions gives exactly the same answer: $0.75 - 0.25 = 0.5$

B. If a group had $\frac{3}{4}$ of one pizza but ate only $\frac{8}{16}$ of it, how much would be left?

$$\begin{array}{|c|c|} \hline \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} \\ \hline \end{array} - \begin{array}{|c|c|c|c|} \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \end{array} = \frac{3}{4} - \frac{8}{16} = \frac{3}{4} - \frac{2}{4} = \boxed{\frac{1}{4}}$$

Second, divide 8 by 4 to change the numerator to get the equivalent fraction $\frac{2}{4}$.

A proper fraction has a numerator that is smaller than its denominator.

First, divide 16 by 4 to get a denominator of 4 so the fractions can be subtracted.

NOTE: Substituting decimals for the above fractions gives the same answer: $0.75 - 0.5 = 0.25$

C. If a group had $\frac{3}{4}$ of one pizza but ate only $\frac{6}{16}$ of it, how much would be left?

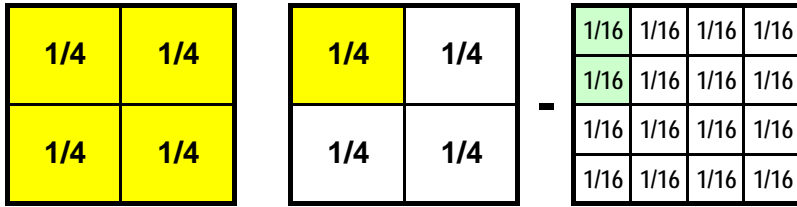
$$\begin{array}{|c|c|} \hline \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} \\ \hline \end{array} - \begin{array}{|c|c|c|c|} \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \end{array} = \frac{3}{4} - \frac{6}{16} = \frac{12}{16} - \frac{6}{16} = \frac{6}{16} = \boxed{\frac{3}{8}}$$

Second, multiply 3 by 4 to change the numerator to get the equivalent fraction $\frac{12}{16}$.

The $\frac{6}{16}$ can be reduced to the equivalent fraction $\frac{3}{8}$ by dividing the numerator and denominator by 2.

First, multiply 4 by 4 to get a denominator of 16 so the fractions can be subtracted.

D. If a group had $1 \frac{1}{4}$ of one pizza type but ate only $\frac{2}{16}$ of it, how much would be left?

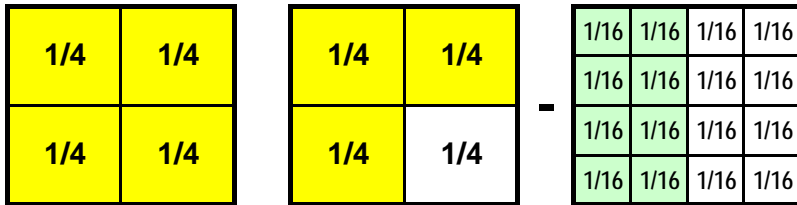


Second, multiply 1 by 4 to change the numerator to get the equivalent fraction $\frac{4}{16}$.

$$1 \frac{1}{4} - \frac{2}{16} = 1 \frac{4}{16} - \frac{2}{16} = 1 \frac{2}{16} = 1 \frac{1}{8}$$

First, multiply 4 by 4 to get a denominator of 16 so the fractions can be subtracted.

E. If a group had $1 \frac{3}{4}$ of one pizza type but ate only $\frac{8}{16}$ of it, how much would be left?

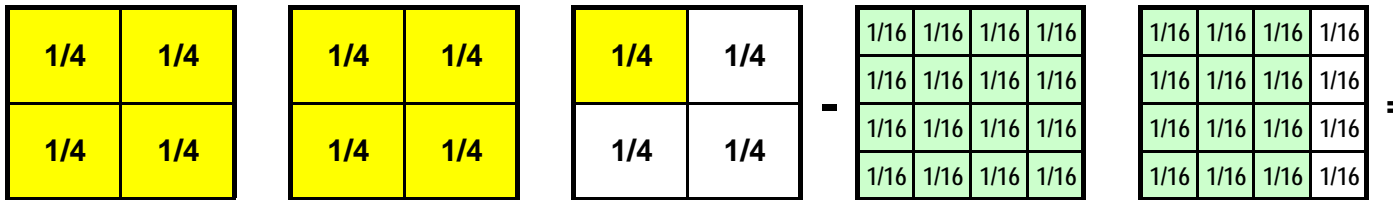


Second, multiply 3 by 4 to change the numerator to get the equivalent fraction $\frac{12}{16}$.

$$1 \frac{3}{4} - \frac{8}{16} = 1 \frac{12}{16} - \frac{8}{16} = 1 \frac{4}{16} = 1 \frac{1}{4}$$

First, multiply 4 by 4 to get a denominator of 16 so the fractions can be subtracted.

F. If a group had $2 \frac{1}{4}$ of one pizza type but ate only $1 \frac{12}{16}$ of it, how much would be left?



Second, divide 12 by 4 to change the numerator to get the equivalent fraction $\frac{3}{4}$.

$$2 \frac{1}{4} - 1 \frac{12}{16} = 2 \frac{1}{4} - 1 \frac{3}{4} = 1 \frac{5}{4} - 1 \frac{3}{4} = 0 \frac{2}{4} = \frac{1}{2}$$

First, divide 16 by 4 to get a denominator of 4 so the fractions can be subtracted.

In the above question, the $\frac{3}{4}$ in the mixed numeral $1 \frac{3}{4}$ cannot be subtracted from the $\frac{1}{4}$ in the mixed numeral $2 \frac{1}{4}$. The $2 \frac{1}{4}$ must be regrouped by taking $\frac{4}{4}$ (=1) from the 2 and adding it to the $\frac{1}{4}$ resulting in $1 \frac{5}{4}$ to allow subtraction.