

ADVANCED ADDING FRACTIONS

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

Fractions must have the same denominator when added.

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

A. If a group ate $\frac{1}{4}$ of one pizza and $\frac{1}{4}$ of a second pizza, how much would have been eaten?

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

Some fractions can be reduced to simpler 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: $0.25 + 0.25 = 0.5$

B. If a group ate $\frac{1}{4}$ of one pizza and $\frac{8}{16}$ of a second pizza, how much would have been eaten?

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

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 added.

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

C. If a group ate $\frac{3}{4}$ of one pizza and $\frac{5}{16}$ of a second pizza, how much would have been eaten?

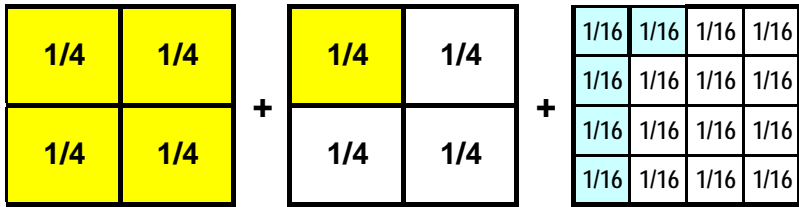
$$\begin{array}{|c|c|} \hline \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} \\ \hline \end{array} + \begin{array}{|c|c|c|c|} \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \frac{1}{16} & \frac{1}{16} & \frac{1}{16} & \frac{1}{16} \\ \hline \end{array} = \frac{3}{4} + \frac{5}{16} = \frac{12}{16} + \frac{5}{16} = \frac{17}{16} = 1 \frac{1}{16}$$

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

Divide 17 by 16 to change the improper fraction to a mixed numeral answer: $1 \frac{1}{16}$

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

D. If a group ate 1 1/4 of one pizza type and 5/16 of a second pizza type, how much would have been eaten?



Second, multiply 1 by 4 to change the numerator to get the equivalent fraction 4/16.

$$1 \frac{1}{4} + \frac{5}{16} = 1 \frac{4}{16} + \frac{5}{16} = 1 \frac{9}{16}$$

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

E. If a group ate 1 3/4 of one pizza type and 9/16 of a second pizza type, how much would have been eaten?



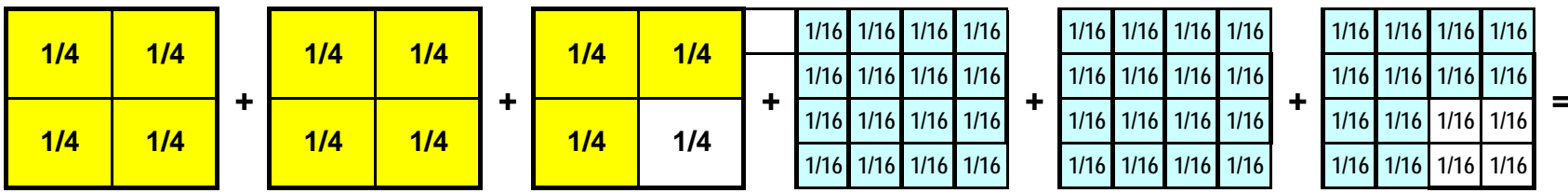
Second, multiply 3 by 4 to change the numerator to get the equivalent fraction 12/16.

$$1 \frac{3}{4} + \frac{9}{16} = 1 \frac{12}{16} + \frac{9}{16} = 1 \frac{21}{16} = 2 \frac{5}{16}$$

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

In the above question, the 21/16 can have 16/16 (=1) removed and added to the whole number 1 resulting in 2 5/16.

F. If a group ate 2 3/4 of one pizza type and 2 12/16 of a second pizza type, how much would have been eaten?



Second, divide 12 by 4 to change the numerator to get the equivalent fraction 3/4.

$$2 \frac{3}{4} + 2 \frac{12}{16} = 2 \frac{3}{4} + 2 \frac{3}{4} = 4 \frac{6}{4} = 5 \frac{2}{4} = 5 \frac{1}{2}$$

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

In the above question, the 6/4 can have 4/4 (=1) removed and added to the whole number 4 resulting in 5 2/4. Then, the 5 2/4 can be reduced to 5 1/2 when the numerator and denominator are each divided by 2.