



Pizza Kitchen

Mission: Orders are piling up at Sunnyside Pizza! Customers want leftover slices from different pizzas combined into one box. You can't add slices of different sizes, so re-cut the pizzas until every slice is the same size.

Big question: How can we add and subtract fractions with different denominators?

★ Warm-up: Which one doesn't belong?

Circle the fraction that does NOT belong. Explain.

$1/2$ · $2/4$ · $3/6$ · $3/5$ ✓ **$3/5$: the others all equal one half.**

$2/3$ · $4/6$ · $6/9$ · $3/4$ ✓ **$3/4$: the others equal two thirds.**

Key vocabulary

Denominator	How many equal pieces the whole is cut into.
Numerator	How many of those pieces you have.
Common denominator	A denominator both fractions can be rewritten with.
Equivalent fractions	Fractions that name the same amount, like $1/2$ and $3/6$.

1 Box 1

Estimate first

PREDICTION Before cutting: is $1/2 + 1/3$ more or less than one whole pizza?

☐ Less than 1 ☐ Exactly 1 ☐ More than 1

Find a common cut

In the simulator: Re-cut both pizzas into equal slices that work for halves AND thirds, then box it.

How much pizza is in the box? (Type a fraction like $5/6$.)

Answer: _____ ✓ **0.8333333333333334**

2 Box 2

Other cuts?

Which slice counts would ALSO work for halves and thirds? Choose all.

Choose all that apply.

☐ 6 ☐ 12 ☐ 18 ☐ 4 ☐ 9

✓ **6; 12; 18**

3 Box 3

Order #2

In the simulator: Box order #2: $2/3 + 1/4$.

How much pizza is in the box? (Use a mixed number like $1 \frac{1}{2}$ if it is more than 1.)

Answer: _____ ✓ **0.9166666666666666**

Show your thinking:

4 Box 4

Order #3: take away

In the simulator: Solve order #3: $\frac{3}{4} - \frac{1}{6}$.

How much pizza is left?

Answer: _____ ✓ **0.5833333333333334**

Show your thinking:

5 Box 5

Error detective

How do you know Marco is wrong WITHOUT calculating exactly?

☐ $\frac{3}{4}$ is already more than $\frac{1}{2}$, and $\frac{8}{12} = \frac{2}{3}$ is less than $\frac{3}{4} + \text{a bit}$. The answer must be more than 1

☐ $\frac{8}{12}$ is bigger than both fractions, so it is right ☐ You can never check without calculating

✓ **$\frac{3}{4}$ is already more than $\frac{1}{2}$, and $\frac{8}{12} = \frac{2}{3}$ is less than $\frac{3}{4} + \text{a bit}$. The answer must be more than 1**

Order #4

In the simulator: Box order #4: $\frac{3}{4} + \frac{5}{8}$.

What is $\frac{3}{4} + \frac{5}{8}$? Use a mixed number.

Answer: _____ ✓ **1.375**

Show your thinking:

6 Box 6

Legend: smallest cut 🏆 Legend only

What is the SMALLEST number of slices that works for fourths and sixths?

Answer: _____ slices ✓ **12**

7 Box 7

Teach a new cook

Explain to a new cook how to add $\frac{1}{2}$ and $\frac{1}{3}$ of a pizza. Use the words "same size".

Look for: Uses "same size" pieces; Names a common denominator; Gives the total



Exit ticket: answer the big question in your own words

How can we add and subtract fractions with different denominators?

Look for: To add or subtract fractions with unlike denominators, make the pieces the same size first: find a common denominator that both denominators divide into evenly (like cutting both pizzas into 6 slices for halves and thirds). Then add or subtract the numbers of equal-size pieces.

Completion codes

Students see a code like **ABC-I3** when they finish. The first part must match below. The letter is the level (E = Explorer, I = Investigator, L = Legend), and the number at the end is how many stars they earned.

Level	Code starts with
 Explorer	11N-E
 Investigator	ELC-I
 Legend	W3V-L

 Watch for these misconceptions

- "Add the tops and add the bottoms." $1/2 + 1/3$ is not $2/5$.
- "Multiplying always makes a number bigger." Multiplying by a fraction less than 1 makes it smaller.
- "You need a common denominator to multiply." Only for adding and subtracting.