# Fraction Pizza Shop

Teacher Guide & Answer Keys

**Grade 4 · All levels**

## Overview

Students run a pizza shop. They draw fraction models for orders, find equivalent fractions when pizzas are cut into more slices, compare fractions with different numerators and denominators, and put orders in order from least to greatest.

**Time:** 2 class periods · **Product:** Pizza Shop Menu Board · **Standards:** 4.NF.A.1, 4.NF.A.2

## Suggested pacing

- Day 1: Introduce the challenge, read the scenario together, and work Parts 1–2 in pairs.
- Day 2: Finish the remaining parts and create the final product.
- Wrap-up: Share products and reflect on strategies.

## Levels

- **Remedial:** smaller numbers, fewer steps, more structure.
- **Standard:** grade-level numbers and the full set of tasks.
- **Advanced:** harder numbers, extra reasoning and multi-step questions.

All three levels practice the same learning goals, so the class can share and compare work.

## Rubric

| Category | 4 Excellent | 3 Good | 2 Developing | 1 Beginning |
|---|---|---|---|---|
| Math accuracy | All answers correct | Most answers correct | Some answers correct | Few answers correct |
| Shows work | Clear work for every step | Work for most steps | Some work shown | Little work shown |
| Explains thinking | Clear, complete explanations | Mostly clear explanations | Some explanation | Little explanation |
| Final product | Complete, neat and creative | Complete and neat | Partly complete | Not complete |

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## Answer key · Remedial KEY

### Part 1: Slice It Smaller

**1.** Draw the pizza before and after the extra cuts.

**Before: 1 of 2 equal parts shaded. After: 4 of 8 equal parts shaded.**

**2.** Write the equivalent fraction. Show the multiplication.

$\frac{1}{2} = (1 \times 4)/(2 \times 4) = \frac{4}{8}$

**3.** Did the customer get more pizza, less pizza, or the same amount? Explain.

**The same amount. There are more slices, but each slice is smaller.**

### Part 2: Which Order Is Bigger?

**4.** Compare the two fractions. Write >, < or =.

$\frac{3}{8} < \frac{5}{8}$

**5.** Explain how you compared them.

**Same denominator: 3 eighths is less than 5 eighths.**

**6.** Why must the pizzas be the same size to compare?

**Fractions can only be compared when they refer to the same whole.**

### Part 3: Order the Orders

**7.** List the orders from least to greatest.

$\frac{1}{8}$ **(Table 4),** $\frac{1}{4}$ **(Table 1),** $\frac{1}{2}$ **(Table 2),** $\frac{3}{4}$ **(Table 3)**

**8.** Which tables ordered more than $\frac{1}{2}$ of a pizza?

**Table 3**

**9.** Which benchmark helped you most: 0, $\frac{1}{2}$ or 1?

**Answers vary. Comparing with $\frac{1}{2}$ sorts most of the orders quickly.**

### Part 4: Menu Board

**10.** Write $\frac{4}{8}$ in simplest form.

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

**11.** Write two more fractions equivalent to it.

**Examples:** $\frac{2}{4}$, $\frac{5}{10}$

**12.** Design your menu board with at least 4 fraction specials and a model for each.

**Check each model matches its fraction and that equal parts are equal.**

### Extension

**No.** $\frac{2}{4}$ **and** $\frac{1}{2}$ **are equivalent only for the same whole; half of a large pizza is more.**

# Fraction Pizza Shop

Teacher Guide & Answer Keys

**Grade 4 · All levels**

## Answer key · Standard KEY

### Part 1: Slice It Smaller

**1.** Draw the pizza before and after the extra cuts.

**Before: 2 of 3 equal parts shaded. After: 8 of 12 equal parts shaded.**

**2.** Write the equivalent fraction. Show the multiplication.

$\frac{2}{3} = (2 \times 4)/(3 \times 4) = \frac{8}{12}$

**3.** Did the customer get more pizza, less pizza, or the same amount? Explain.

**The same amount. There are more slices, but each slice is smaller.**

### Part 2: Which Order Is Bigger?

**4.** Compare the two fractions. Write >, < or =.

$\frac{3}{4} > \frac{5}{8}$

**5.** Explain how you compared them.

**Rename with the denominator 8: $\frac{6}{8}$ and $\frac{5}{8}$.**

**6.** Why must the pizzas be the same size to compare?

**Fractions can only be compared when they refer to the same whole.**

### Part 3: Order the Orders

**7.** List the orders from least to greatest.

**$\frac{5}{12}$ (Table 4), $\frac{1}{2}$ (Table 2), $\frac{2}{3}$ (Table 1), $\frac{5}{6}$ (Table 3)**

**8.** Which tables ordered more than $\frac{1}{2}$ of a pizza?

**Table 1, Table 3**

**9.** Which benchmark helped you most: 0, $\frac{1}{2}$ or 1?

**Answers vary. Comparing with $\frac{1}{2}$ sorts most of the orders quickly.**

### Part 4: Menu Board

**10.** Write $\frac{8}{12}$ in simplest form.

$\frac{8}{12} = \frac{2}{3}$

**11.** Write two more fractions equivalent to it.

**Examples: $\frac{4}{6}$, $\frac{10}{15}$**

**12.** Design your menu board with at least 4 fraction specials and a model for each.

**Check each model matches its fraction and that equal parts are equal.**

### Extension

**Example: $\frac{7}{12}$, because $\frac{1}{2} = \frac{6}{12}$ and $\frac{2}{3} = \frac{8}{12}$.**

# Fraction Pizza Shop

Teacher Guide & Answer Keys

Grade 4 · All levels

## Answer key · Advanced KEY

### Part 1: Slice It Smaller

**1.** Draw the pizza before and after the extra cuts.

**Before: 3 of 4 equal parts shaded. After: 9 of 12 equal parts shaded.**

**2.** Write the equivalent fraction. Show the multiplication.

$\frac{3}{4} = (3 \times 3)/(4 \times 3) = \frac{9}{12}$

**3.** Did the customer get more pizza, less pizza, or the same amount? Explain.

**The same amount. There are more slices, but each slice is smaller.**

### Part 2: Which Order Is Bigger?

**4.** Compare the two fractions. Write >, < or =.

$\frac{5}{6} < \frac{7}{8}$

**5.** Explain how you compared them.

**Rename with the denominator 24: $\frac{20}{24}$ and $\frac{21}{24}$.**

**6.** Why must the pizzas be the same size to compare?

**Fractions can only be compared when they refer to the same whole.**

### Part 3: Order the Orders

**7.** List the orders from least to greatest.

**$\frac{7}{12}$ (Table 3), $\frac{2}{3}$ (Table 1), $\frac{3}{4}$ (Table 2), $\frac{5}{6}$ (Table 4)**

**8.** Which tables ordered more than $\frac{1}{2}$ of a pizza?

**Table 3, Table 1, Table 2, Table 4**

**9.** Which benchmark helped you most: 0, $\frac{1}{2}$ or 1?

**Answers vary. Comparing with $\frac{1}{2}$ sorts most of the orders quickly.**

### Part 4: Menu Board

**10.** Write $\frac{9}{12}$ in simplest form.

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

**11.** Write two more fractions equivalent to it.

**Examples: $\frac{6}{8}$, $\frac{15}{20}$**

**12.** Design your menu board with at least 4 fraction specials and a model for each.

**Check each model matches its fraction and that equal parts are equal.**

### Extension

**$\frac{9}{10}$. Each is one piece less than a whole: $\frac{1}{8}$ is missing from $\frac{7}{8}$ and $\frac{1}{10}$ is missing from $\frac{9}{10}$. $\frac{1}{10}$ is smaller, so $\frac{9}{10}$ is closer to 1.**

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## Worked teacher example (Standard, Part 1)

Draw the pizza before and after the extra cuts.

**Before: 2 of 3 equal parts shaded. After: 8 of 12 equal parts shaded.**

Write the equivalent fraction. Show the multiplication.

$\frac{2}{3} = (2 \times 4)/(3 \times 4) = \frac{8}{12}$

Did the customer get more pizza, less pizza, or the same amount? Explain.

**The same amount. There are more slices, but each slice is smaller.**

Model the first part aloud: read the situation, name the operation, estimate, solve, and check. Then let partners try Part 2.

## Look for

- Students use correct notation and units in every answer.
- Students explain why an answer is reasonable (estimates, benchmarks, pictures).
- Final products show the math clearly, not just the answers.