

Pizza Parlor

A Game of
Fractions



Gypsy Gameschooler

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Pizza Parlor

In order to play this game, you will need three dice. If you don't have a physical copy of the game, I still want you to be able to play! You can create digital dice; so far I've tried the app Dice App: **Custom Dice Roller**. You can also try the dice charts on the next page with regular d6s.

You'll need an **operation die**. I've designed the game with one side addition, one side subtraction, two sides multiplication, one side division, and one blank side. You can choose other arrangements, though, based on your needs.

The fractions I've included in the game as designed include $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$, $\frac{1}{12}$, and $\frac{1}{16}$ (the orange die). However, again, you can modify this to fit your needs. I thought about including more complex fractions, but for the physical board game to work, I needed some simplicity. However, if you're just playing the game with digital dice and writing down your progress, you can certainly make things a lot more complex! Maybe try a d20 for a wide variety of fractions!

Last, you'll need a die with a mix of fractions and whole numbers (the white die). I've included $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, **2**, **3**, and **4**. Again, you can make this more complicated as you want.

Goal: Fill one pizza pan exactly.

Dice Charts

Operation Die

Die	Game
1	
2	
3	
4	
5	
6	

Fractions Die (Orange)

Die	Game
1	
2	
3	
4	
5	
6	

Mixed Die (White)

Die	Game
1	
2	
3	
4	
5	
6	

After the worksheet, you'll find the full instructions for the full game and all the variations.

The next several pages are for you to make your own pizza slices! If you want to save your printer ink and avoid color, print out only the sheets with the cut lines on them. If you want a more colorful experience, print pages 8-19 double-sided. After printing, you can write the fractions on the back (each page produces one full pizza). Lamination will help your pieces last.

Pizza Parlor

1. Roll the orange die. Circle the fraction: $\frac{1}{16}$ $\frac{1}{12}$ $\frac{1}{8}$ $\frac{1}{6}$ $\frac{1}{4}$ $\frac{1}{3}$

2. Roll the operation die: _____ If you rolled + or -, roll the orange die: _____

Otherwise, roll the white die: _____ Your new total: _____

3. Roll the operation die: _____ If you rolled + or -, roll the orange die: _____

Otherwise, roll the white die: _____ Your new total: _____

4. Roll the operation die: _____ If you rolled + or -, roll the orange die: _____

Otherwise, roll the white die: _____ Your new total: _____

5. Roll the operation die: _____ If you rolled + or -, roll the orange die: _____

Otherwise, roll the white die: _____ Your new total: _____

6. Roll the operation die: _____ If you rolled + or -, roll the orange die: _____

Otherwise, roll the white die: _____ Your new total: _____

7. Roll the operation die: _____ If you rolled + or -, roll the orange die: _____

Otherwise, roll the white die: _____ Your new total: _____

8. Roll the operation die: _____ If you rolled + or -, roll the orange die: _____

Otherwise, roll the white die: _____ Your new total: _____

9. Roll the operation die: _____ If you rolled + or -, roll the orange die: _____

Otherwise, roll the white die: _____ Your new total: _____

10. Roll the operation die: _____ If you rolled + or -, roll the orange die: _____

Otherwise, roll the white die: _____ Your new total: _____

Pizza Parlor

A Game of Fractions

You and your friends have been asked to help your grandpa out at his pizza parlor. Work together or individually to fill orders as fast as you can to keep the pizza parlor in business.

Objective

Be the first to fill one pizza pan exactly.

Components

3 Custom Dice

6 Pizza Pans

49 Pizza Slices

Setup

Every player gets 1 pizza pan. All the pizza slices start in the middle. The player who last ate pizza goes first, then play continues clockwise around the table.

Starting the Game

On your first turn, and any turn in which you start out with no slices, just roll the orange die. Select the matching pizza slice to add to your pan.

The Second Turn and Beyond

On all other turns, roll the pink die. If you roll a + or -, then roll the same orange fraction die as before.

If you get a multiplication or division symbol, roll the white die. Complete the action for ONE of your slices (ex, you have a $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{8}$ slices and roll $\times \frac{1}{2}$. Multiply just one slice by $\frac{1}{2}$, so you could exchange the $\frac{1}{8}$ slice for a $\frac{1}{16}$ slice).

If you roll the blank spot, you get to choose your operation! Roll the appropriate die for whichever operation you choose.

Winning the Game

The first person to perfectly fill their pizza pan (no gaps, no leftovers) wins. You can choose to keep playing until all players fill their pans or stop after the first player fills their pan.

Additional Instructions

You may need to “make change” (for example, if you have 1 slice of $\frac{1}{4}$ pizza and are supposed to subtract $\frac{1}{8}$, you’ll need to exchange your $\frac{1}{4}$ slice for 2 slices of $\frac{1}{8}$ each, and then subtract $\frac{1}{8}$).

If the dice tell you to subtract more pizza than you have (for example, you have $\frac{1}{8}$ slice and you’re supposed to subtract $\frac{1}{4}$ slice), just remove the slice you have and start your next turn from 0.

If you’re not able to perform the action, just get as close as you can, in your favor. (For example, if you have $\frac{1}{8}$ slice and it says to subtract $\frac{1}{12}$, just subtract $\frac{1}{16}$ because that’s as close as the game will let you get.)

It is possible to have more than one full pizza. Just collect the extra slices in front of you. You don’t win, because you need exactly one full pizza pan to win, but those extra slices might come in handy.

If there are no more of the correct kind of slice you need, take one from another player’s pizza pan, but try to get what you need from the pile (i.e., if you need to get $\frac{1}{4}$, but there are none, get two $\frac{1}{8}$ before stealing from another’s pan).

Watch a Play-Through

Check out our YouTube channel or the website to watch play-throughs and clarify rules!



Alternate Rules

Playing with younger players:

Whenever you roll a multiplication symbol, treat it as an addition symbol. When you roll a division symbol, treat it as a subtraction symbol.

For further simplification, limit the fractions used to $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, and $\frac{1}{8}$. When you roll at $\frac{1}{12}$ or $\frac{1}{16}$, treat it as a "wild" roll, and the player can choose whatever will help them the most. If you limit the fractions in this way, you'll also have to limit the players to just 4, so you don't run out of pizza slices and make it too competitive.

Cooperative Play:

Choose between 1 and 6 pizza pans. Pans stay in the center, around the slices. On each roll, the group decides which pizza pan would be best to place the new slice, but the roller has veto power. The group wins when all the pizza pans have been filled perfectly.

Lunch Rush:

For advanced, faster gameplay. On every roll, every player gets to act! If you have three or fewer players, you can also choose for every player to need to fill more than one pizza pan.

Advanced Fractions:

Instead of multiplying or dividing just one piece by the rolled number, multiply or divide the entirety of your pizza. Remember to round in your favor. For example, if you have $\frac{1}{3}$, $\frac{1}{8}$, and $\frac{1}{12}$, you would have a total of $\frac{13}{24}$. If you roll $\times \frac{1}{2}$, you would need to end up with $\frac{13}{48}$. This of course isn't possible with the game pieces as-is, so you'd need to exchange your $\frac{1}{3}$ for $\frac{1}{6}$, your $\frac{1}{8}$ for $\frac{1}{16}$, and downgrade your $\frac{1}{12}$ to $\frac{1}{16}$ (so you could just remove your $\frac{1}{12}$ and swap out your $\frac{1}{3}$ for $\frac{1}{6}$). You'd end up with a total of $\frac{7}{24}$ (or $\frac{14}{48}$).

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