

Partitioning Shapes into Equal Parts

Splitting a shape into equal parts is what fractions are about. Two equal parts = halves. Three = thirds. Four = fourths. And so on.

| Number of equal parts | Name of each part |
|-----------------------|-------------------------------------|
| 2 | half ($\frac{1}{2}$) |
| 3 | third ($\frac{1}{3}$) |
| 4 | fourth or quarter ($\frac{1}{4}$) |
| 6 | sixth ($\frac{1}{6}$) |
| 8 | eighth ($\frac{1}{8}$) |

Key Concepts

- Partitioning** means splitting a shape into equal parts.
- Each part is a *unit fraction* of the whole: $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \dots$
- The **more** pieces you split a shape into, the *smaller* each piece becomes. A pizza cut into 8 pieces gives smaller slices than the same pizza cut into 4.
- To name what fraction is shaded, count the shaded parts (numerator) over the total parts (denominator).

Worked Examples

① A rectangle is cut into 3 equal parts. What fraction is each part?

 Three equal parts means thirds. Each part is $\frac{1}{3}$ of the whole.

 **Answer:** $\frac{1}{3}$

② A pizza is cut into 8 equal slices. You eat 2 slices. What fraction did you eat?

 2 eaten out of 8 total = $\frac{2}{8}$.

 **Answer:** $\frac{2}{8}$

③ Which is larger: $\frac{1}{4}$ of a pie or $\frac{1}{6}$ of the same pie?

 Same numerator (1); compare denominators. $4 < 6$, so fourths are bigger pieces than sixths. $\frac{1}{4}$ is larger.

 **Answer:** $\frac{1}{4}$

Practice Problems

Identify the fraction or compare sizes.

1. Shape split into 2 equal parts \Rightarrow each = _____
?
2. Shape split into 4 equal parts \Rightarrow each = _____
?
3. Shape split into 6 equal parts \Rightarrow each = _____
?
4. Shape split into 8 equal parts \Rightarrow each = _____
?
5. 3 of 4 equal parts shaded \Rightarrow fraction = ?

6. 5 of 8 equal parts shaded \Rightarrow fraction = ?




7. Which is bigger: $\frac{1}{3}$ or $\frac{1}{6}$? _____
8. Which is bigger: $\frac{1}{2}$ or $\frac{1}{4}$? _____
9. A bar is split into 3 equal parts. 2 are shaded. \Rightarrow ?

10. A circle is split into 6 parts. 1 is shaded. \Rightarrow ?

11. Halves, thirds, or fourths: which has the largest piece?

12. How many eighths make one whole?

Study Tips

-  More pieces means smaller pieces. Two halves are big; eight eighths are small.
-  A shape can only be split into equal pieces if all pieces are the same size. Otherwise, it doesn't count as fractioning.
-  When the numerator equals the denominator ($\frac{8}{8}, \frac{4}{4}$), you have the whole.

Word Problems

1. A brownie tray is cut into 6 equal pieces. Tyler eats 2 pieces. What fraction of the tray did he eat?
Answer: _____
2. Nina folds a piece of paper into 4 equal parts and colors 3 of them. What fraction is colored?
Answer: _____

Answer Key — with Friendly Explanations**Practice Problems**

1. Each is a half.  **Answer:** $\frac{1}{2}$
2. Each is a fourth.  **Answer:** $\frac{1}{4}$
3. Each is a sixth.  **Answer:** $\frac{1}{6}$
4. Each is an eighth.  **Answer:** $\frac{1}{8}$
5. 3 shaded of 4 total.  **Answer:** $\frac{3}{4}$
6. 5 shaded of 8 total.  **Answer:** $\frac{5}{8}$
7. Same numerator, smaller denominator wins.  **Answer:** $\frac{1}{3}$
8. Same numerator, smaller denominator wins.  **Answer:** $\frac{1}{2}$
9. 2 of 3 shaded.  **Answer:** $\frac{2}{3}$
10. 1 of 6 shaded.  **Answer:** $\frac{1}{6}$
11. Fewer pieces = bigger pieces. Halves.  **Answer:** *Halves*
12. $\frac{8}{8}$ makes one whole.  **Answer:** 8

Word Problems

1. 2 out of 6: $\frac{2}{6}$.  **Answer:** $\frac{2}{6}$
2. 3 out of 4: $\frac{3}{4}$.  **Answer:** $\frac{3}{4}$

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