

### B1.4.0 Welcome to Fraction Fundamentals!

This worksheet is designed to help you master fractions from halves to tenths. You'll learn to represent fractions visually, understand equivalent fractions, compare fractions, and solve real-world problems. Understanding fractions is essential for everyday math and will prepare you for more advanced mathematical concepts.

## 1 B1.4.0 Understanding Fractions from Halves to Tenths

Fractions represent equal parts of a whole. The top number (numerator) shows how many parts we have, and the bottom number (denominator) shows how many equal parts the whole is divided into.

### 1.1 Fraction Basics

- **Numerator:** The number above the fraction bar - tells how many parts we have
- **Denominator:** The number below the fraction bar - tells how many equal parts make one whole
- **Proper Fraction:** Numerator is less than denominator (like  $\frac{3}{4}$ )
- **Unit Fraction:** Numerator is 1 (like  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ )

### 1.2 Common Fractions from Halves to Tenths

Fraction	Name	Visual Representation	Decimal
$\frac{1}{2}$	One half		0.5
$\frac{1}{3}$	One third		0.333...
$\frac{1}{4}$	One quarter		0.25
$\frac{1}{5}$	One fifth		0.2

## 2 Representing Fractions in Different Ways

Fractions can be shown in multiple ways: as parts of a whole, on a number line, and in real-world situations.

### 2.1 Visual Representations

**Example 2: Fraction Bars**

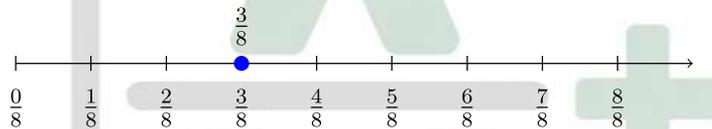
Represent  $\frac{2}{5}$  using fraction bars:



**2.2 Number Line Representations**

**Example 3: Number Line**

Locate  $\frac{3}{8}$  on the number line:



**3 Equivalent Fractions**

Equivalent fractions represent the same amount, even though they look different.

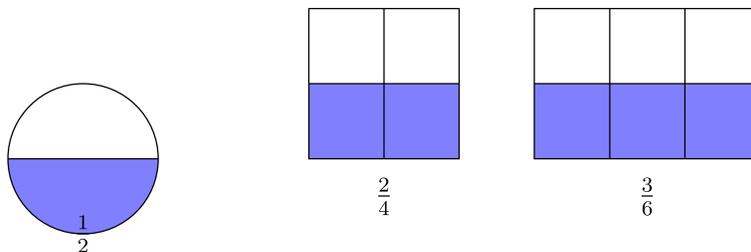
**Example 4: Finding Equivalent Fractions**

Find two fractions equivalent to  $\frac{1}{2}$ :

**Step 1: Multiply numerator and denominator by the same number**

- $\frac{1}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$
- $\frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6}$

**Step 2: Visual confirmation**



**Master fractions to understand parts of wholes and solve real-world problems!**

# Fraction Art Gallery

**Art Project 1: Color the Fractions!**

Color the shapes to show each fraction. Use different colors for each part!

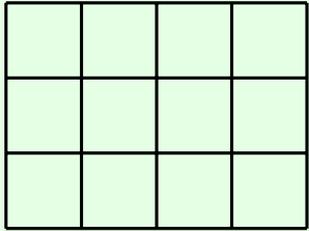
**Problem 1: Fraction Coloring Fun**  
Color these fractions in the boxes below:

a) Color  $\frac{2}{3}$  of the circle



a) Circle for  $\frac{2}{3}$

b) Color  $\frac{3}{4}$  of the rectangle



b) Grid for  $\frac{3}{4}$

c) Color  $\frac{4}{5}$  of the triangles



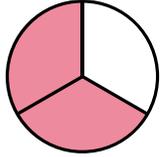
c) Stars for  $\frac{4}{5}$

d) Color  $\frac{1}{2}$  of the hearts

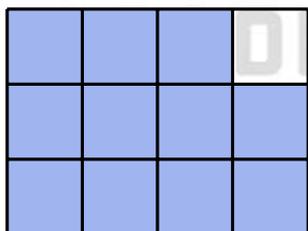


d) Hearts for  $\frac{1}{2}$

**Solution Let's color together!**



2 parts colored =  $\frac{2}{3}$



3 rows colored =  $\frac{3}{4}$



4 stars colored =  $\frac{4}{5}$

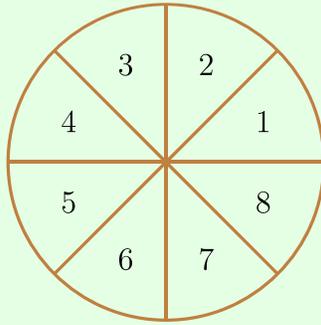


1 heart colored =  $\frac{1}{2}$

**Problem 2: Pizza Party Fractions**

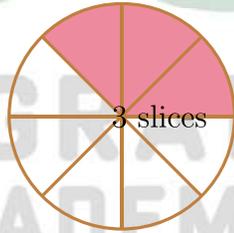
At the pizza party, the pizza was cut into 8 equal slices. Help answer these questions:

- a) If you eat 3 slices, what fraction of the pizza did you eat?
- b) Your friend eats 2 slices. What fraction did they eat?
- c) What fraction of the pizza is left?
- d) If you want to share the remaining pizza equally between 2 friends, what fraction will each get?



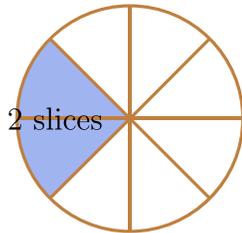
**Solution Let's solve the pizza puzzle!**

- a) **You ate 3 slices:**



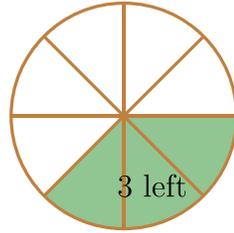
$\frac{3}{8}$  of the pizza

- b) **Friend ate 2 slices:**



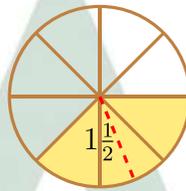
$\frac{2}{8} = \frac{1}{4}$  of the pizza

c) **Pizza left:**  $8 - 3 - 2 = 3$  slices left



$\frac{3}{8}$  of the pizza left

d) **Sharing equally:**  $3 \text{ slices} \div 2 \text{ friends} = 1\frac{1}{2}$  slices each



Each gets  $\frac{3}{2}$  slices =  $1\frac{1}{2}$  slices

**Problem 3: Fraction Number Line Adventure**

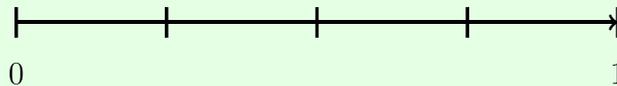
Place these fractions on the number lines:

a) Mark  $\frac{1}{2}$ ,  $\frac{1}{4}$ , and  $\frac{3}{4}$  on the number line

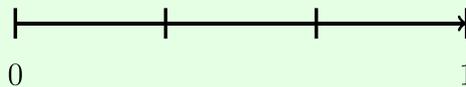
b) Mark  $\frac{2}{3}$  and  $\frac{1}{3}$  on the number line

c) Mark  $\frac{2}{5}$ ,  $\frac{4}{5}$ , and  $\frac{1}{5}$  on the number line

a) Halves and Quarters



b) Thirds

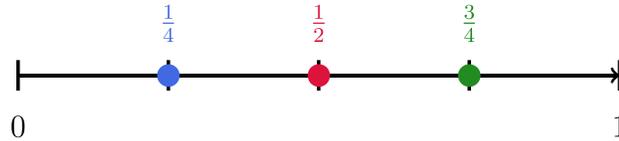


c) Fifths

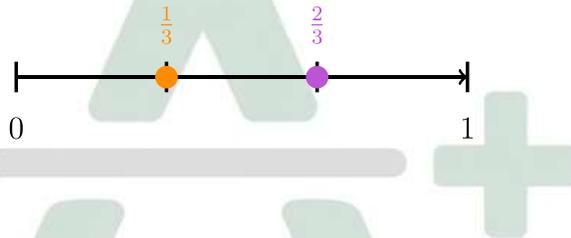


Solution Let's place our fraction friends on the number lines!

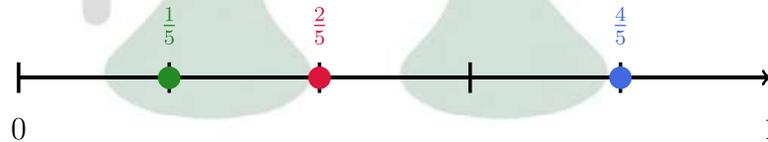
a) Halves and Quarters:



b) Thirds:



c) Fifths:



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### Problem 4: Equivalent Fraction Match Game

Draw lines to match equivalent fractions! Then color the matching pairs the same color.

$$\frac{1}{3}$$

$$\frac{2}{4}$$

$$\frac{1}{2}$$

$$\frac{4}{6}$$

$$\frac{2}{3}$$

$$\frac{6}{8}$$

$$\frac{3}{4}$$

$$\frac{2}{6}$$

**Solution** Let's match our fraction friends!

$$\frac{1}{2} \xrightarrow{\text{SAME!}} \frac{2}{4}$$

$$\frac{2}{3} \xrightarrow{\text{SAME!}} \frac{4}{6}$$

$$\frac{3}{4} \xrightarrow{\text{SAME!}} \frac{6}{8}$$

$$\frac{1}{3} \xrightarrow{\text{SAME!}} \frac{2}{6}$$

**Why they're equivalent:**

- $\frac{1}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$
- $\frac{2}{3} = \frac{2 \times 2}{3 \times 2} = \frac{4}{6}$
- $\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$
- $\frac{1}{3} = \frac{1 \times 2}{3 \times 2} = \frac{2}{6}$

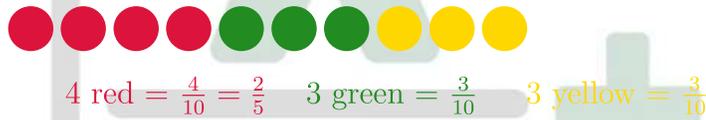
**Problem 5: Fraction Word Problems Story Time**

Solve these fun stories using fractions!

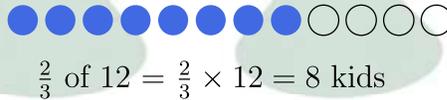
- a) **The Candy Jar:** There are 10 candies in a jar. 4 are red, 3 are green, and 3 are yellow. What fraction are red? What fraction are green? What fraction are yellow?
- b) **Park Adventure:** 12 kids went to the park.  $\frac{2}{3}$  played on the swings. How many kids played on the swings?
- c) **Art Class:** Sarah used  $\frac{3}{8}$  of her red paint and  $\frac{2}{8}$  of her blue paint. What fraction of her paint did she use altogether?
- d) **Pizza Problem:** A pizza was cut into 6 slices. Dad ate 1 slice, Mom ate 1 slice, and you ate 2 slices. What fraction of the pizza was eaten?

**Solution** Let's solve these fun stories!

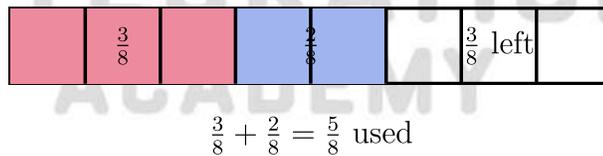
a) **The Candy Jar:**



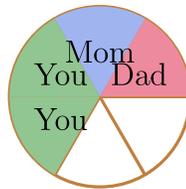
b) **Park Adventure:**



c) **Art Class:**



d) **Pizza Problem:**

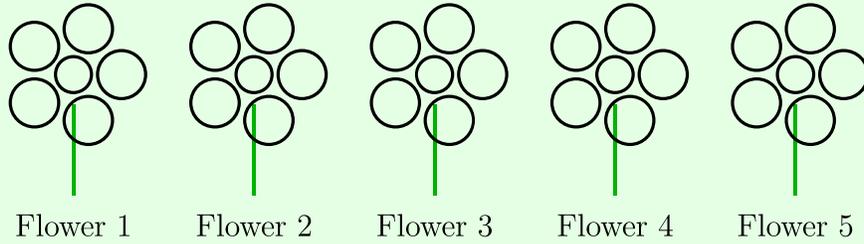


$4 \text{ slices eaten} = \frac{4}{6} = \frac{2}{3}$

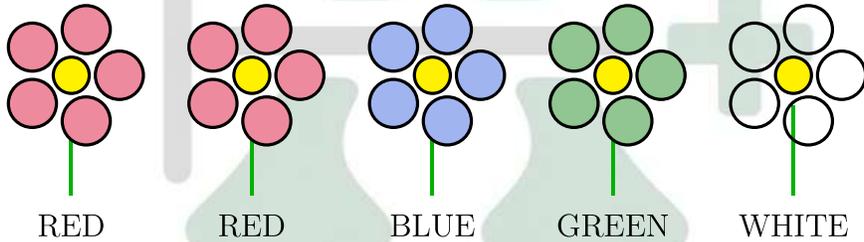
**Problem 6: Fraction Garden Coloring**

Color the fraction garden! Follow the instructions to make a beautiful flower garden.

- a) Color  $\frac{2}{5}$  of the flowers **RED**
- b) Color  $\frac{1}{5}$  of the flowers **BLUE**
- c) Color  $\frac{1}{5}$  of the flowers **GREEN**
- d) Leave  $\frac{1}{5}$  of the flowers **WHITE**



**Solution** Let's create a beautiful fraction garden!



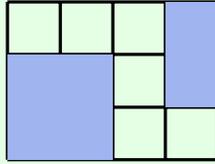
**Fraction Summary:**

- **RED:** 2 flowers =  $\frac{2}{5}$
- **BLUE:** 1 flower =  $\frac{1}{5}$
- **GREEN:** 1 flower =  $\frac{1}{5}$
- **WHITE:** 1 flower =  $\frac{1}{5}$
- **Total:**  $\frac{2}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{5}{5} = 1$  whole garden!

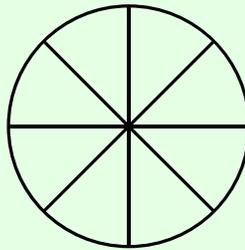
**Problem 7: Fraction Puzzle Pieces**

Complete the fraction puzzles by filling in the missing pieces!

a) What fraction of the shape is shaded?



b) Shade  $\frac{3}{8}$  of this circle:



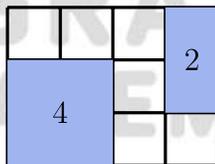
c) Complete the pattern:  $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \text{-----}, \text{-----}$

d) If  $\frac{2}{3} = \frac{?}{12}$ , what is the missing number?

**Solution** Let's solve these fraction puzzles!

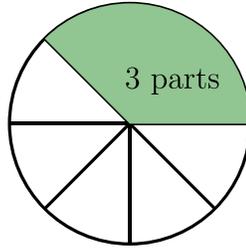
a) **Shaded Fraction:**

Total squares: 12



$$\text{Shaded: } 4 + 2 = 6 \text{ squares} = \frac{6}{12} = \frac{1}{2}$$

b) **Shading  $\frac{3}{8}$  of circle:**



3 out of 8 parts =  $\frac{3}{8}$

c) **Pattern:**  $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}$

Pattern: Add 1 to numerator and 2 to denominator!

$$\frac{1}{2} \xrightarrow{\quad} \frac{2}{4} \xrightarrow{\quad} \frac{3}{6} \xrightarrow{\quad} \frac{4}{8} \xrightarrow{\quad} \frac{5}{10}$$

d) **Missing Number:**  $\frac{2}{3} = \frac{?}{12}$

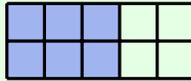
Answer:  $\frac{2}{3} = \frac{8}{12}$

$$\frac{2}{3} = \frac{\square}{12} \quad \xrightarrow{\quad} \text{Since } 3 \times 4 = 12 \quad \xrightarrow{\quad} 2 \times 4 = 8$$

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**Problem 8: Game Questions:**

1. If you have 8 cookies and eat 3, what fraction did you eat?
2. Which is bigger:  $\frac{2}{5}$  or  $\frac{3}{5}$ ?
3. What fraction is shown?



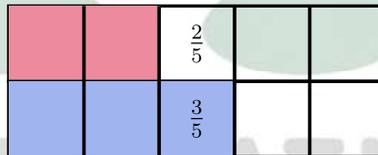
**Solution** Let's play the fraction board game!

**1. Cookie Question:**



Move forward 3 spaces!

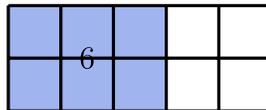
**2. Comparing Fractions:**



$\frac{3}{5}$  is bigger! Move forward 3 spaces!

**3. Shaded Fraction:**

Total squares: 10



Shaded: 6 squares =  $\frac{6}{10} = \frac{3}{5}$

Move forward to **FINISH!**

### Problem 9: Fraction Super Challenge!

You're a Fraction Superhero! Solve these super challenges:

- a) **Secret Code:** Decode the message using fractions!

$\frac{1}{2}$	$\frac{3}{4}$	$\frac{2}{3}$	$\frac{1}{4}$	$\frac{4}{5}$	$\frac{1}{3}$
A	E	F	C	T	O

Message:  $\frac{1}{2}$   $\frac{3}{4}$   $\frac{2}{3}$   $\frac{1}{4}$   $\frac{4}{5}$   $\frac{1}{3}$   $\frac{2}{3}$   $\frac{1}{4}$   $\frac{3}{4}$   $\frac{1}{2}$

- b) **Fraction Maze:** Find your way through the maze by following the fractions from smallest to largest!

START

	$\frac{1}{2}$	$\frac{2}{5}$	$\frac{3}{8}$
$\frac{1}{4}$	$\frac{4}{5}$	$\frac{1}{6}$	$\frac{4}{6}$
$\frac{3}{5}$	$\frac{1}{3}$	$\frac{5}{6}$	$\frac{7}{8}$
$\frac{2}{3}$	$\frac{3}{4}$	$\frac{2}{4}$	

FINISH

**Solution** You're a Fraction Superhero! Let's solve these challenges!

- a) **Secret Code Decoding:**

$\frac{1}{2}$	$\frac{3}{4}$	$\frac{2}{3}$	$\frac{1}{4}$	$\frac{4}{5}$	$\frac{1}{3}$
A	E	F	C	T	O

Message:  $\frac{1}{2}$   $\frac{3}{4}$   $\frac{2}{3}$   $\frac{1}{4}$   $\frac{4}{5}$   $\frac{1}{3}$   $\frac{2}{3}$   $\frac{1}{4}$   $\frac{3}{4}$   $\frac{1}{2}$

Decoded: A E F C T O F C E A

Secret Message: **AWESOME FRACTION WORK!**

- b) **Fraction Maze Solution:**

START

	$\frac{1}{2}$	$\frac{2}{5}$	$\frac{3}{8}$
$\frac{1}{4}$	$\frac{4}{5}$	$\frac{1}{6}$	$\frac{4}{6}$
$\frac{3}{5}$	$\frac{1}{3}$	$\frac{5}{6}$	$\frac{7}{8}$
$\frac{2}{3}$	$\frac{3}{4}$	$\frac{2}{4}$	

FINISH

**Path Order:**  $\frac{1}{4} \rightarrow \frac{1}{3} \rightarrow \frac{1}{2} \rightarrow \frac{2}{5} \rightarrow \frac{1}{6} \rightarrow \frac{3}{8} \rightarrow \frac{4}{6} \rightarrow \frac{7}{8} \rightarrow$  FINISH

**You found the path! Superhero work!**