

## Warm-Up

What *fraction* of this class is wearing glasses?  $\frac{1}{13}$  → Ivan

→ Total students

could this be written as a ratio?

1:13

glasses to students!

What is a ratio?

- It shows how much of one thing there is compared to another.
- Example:
  - > If there are 2 cats and 3 dogs, the ratio of cats to dogs is 2:3.

A bag has 8 red marbles and 12 blue marbles.

- Ratio of red to blue =  $8:12$
  - Fraction red to blue =  $\frac{8}{12}$
  - Ratio of red to total =  $8:20$
  - Fraction of marbles that are red =  $\frac{8}{20}$
- part - to - part x

There are 10 boys and 15 girls in a class.

- Ratio of boys to girls =  $10:15$
- Ratio of girls to total =  $\frac{15}{25}$
- Fraction of class that are girls =  $\frac{15}{25}$

## What is a Fraction?

- A **fraction** shows a part of a whole.
- It has two numbers:

$$\frac{\text{top number (numerator)}}{\text{bottom number (denominator)}}$$

- **Numerator** = how many parts you have.
- **Denominator** = the number you have in total.

## Fractions and Ratios Together

- A fraction is **part-to-whole**.
- A ratio can be **part-to-part** or **part-to-whole**.

# Equivalent Fractions and Ratios

- Fractions and ratios can be **simplified**
  - > divide both terms by their greatest common factor
  - > if they do not have a common factor, it is simplified.

Example:

• Simplify  $\frac{6}{12} = \frac{1}{2}$

*(Handwritten: 6 and 12 are divided by 6)*

$\frac{2}{6} = \frac{1}{3}$

*(Handwritten: 2 and 6 are divided by 2)*

$\frac{6}{12} = \frac{1}{2}$

*(Handwritten: 6 and 12 are divided by 6)*



WE ALWAYS SIMPLIFY  
OUR  
FRACTIONS/RATIOS TO  
THEIR SMALLEST  
FORM

Let's practice these together

1. Simplify:

$$\text{a) } \frac{24}{36} = \frac{2}{3}$$

*(Handwritten: 24 and 36 are both divided by 12)*

$$\frac{20}{20} = \frac{1}{4} \text{ b) } 5$$

*(Handwritten: 20 is divided by 20, 1 is divided by 4)*

$$\frac{12}{12} = \frac{3}{4} \text{ c) } 1$$

*(Handwritten: 12 is divided by 12, 3 is divided by 4)*

**24**  
 $1 \times 24$   
 $2 \times 12$   
 $6 \times 4$   
 $3 \times 8$

**36**  
 $6 \times 6$   
 $36 \times 1$   
 $2 \times 18$   
 $3 \times 12$

$4 \times 9$

**5**  
 $1 \times 5$

**20**  
 $10 \times 2$   
 $1 \times 20$   
 $4 \times 5$

**9**  
 $1 \times 9$   
 $3 \times 3$

**12**  
 $2 \times 6$   
 $1 \times 12$   
 $3 \times 4$

2. Simplify:

$$\text{a) } 14:8 = 7:4$$

*(Handwritten: 14 and 8 are both divided by 2)*

$$9:9 = 1:3 \text{ b) } 9:27$$

*(Handwritten: 9 is divided by 9, 1 is divided by 3)*

$$3:3 = 1:6 \text{ c) } 1:6$$

*(Handwritten: 3 is divided by 3, 1 is divided by 6)*

**14**  
 $2 \times 7$   
 $1 \times 14$

**8**  
 $2 \times 4$   
 $1 \times 8$

**9**  
 $1 \times 9$   
 $3 \times 3$

**27**  
 $9 \times 3$   
 $1 \times 27$

**21**  
 $3 \times 7$   
 $1 \times 21$

**18**  
 $1 \times 18$   
 $2 \times 9$   
 $3 \times 6$

# Simplify Fractions:

1.  $\frac{6}{12} = \frac{1}{2}$

2.  $\frac{15}{25} = \frac{3}{5}$

3.  $\frac{20}{30} = \frac{2}{3}$

4.  $\frac{18}{24} = \frac{3}{4}$

5.  $\frac{16}{20} = \frac{4}{5}$

18  
1 x 18  
2 x 9  
3 x 6

24  
1 x 24  
2 x 12  
3 x 8  
4 x 6

16  
1 x 16  
2 x 8  
4 x 4

20  
1 x 20  
2 x 10  
4 x 5



## Simplify Ratios:

1.  $6 : 12 =$  \_\_\_\_\_

2.  $15 : 25 =$  \_\_\_\_\_

3.  $20 : 30 =$  \_\_\_\_\_

4.  $18 : 24 =$  \_\_\_\_\_

5.  $16 : 20 =$  \_\_\_\_\_

Brain Break

Homework:

simplifying fractions worksheet