

FRACTIONS

Arithmetic Test



Vocabulary

- Whole
- Integer
- Fraction
- Part
- Numerator
- Denominator
- Improper fraction
- Mixed number
- Multiple
- Lowest common multiple
- Equivalent
- Add
- Subtract
- Multiply
- Divide
- Simplify



Fractions Song

If adding or subtracting is your game
First the bottom numbers must be the same

$$\frac{1}{5} + \frac{2}{6}$$

Change it by multiply or divide

$$\frac{6}{30} + \frac{10}{30} = \frac{16}{30}$$

Do the same to the top you've been advised

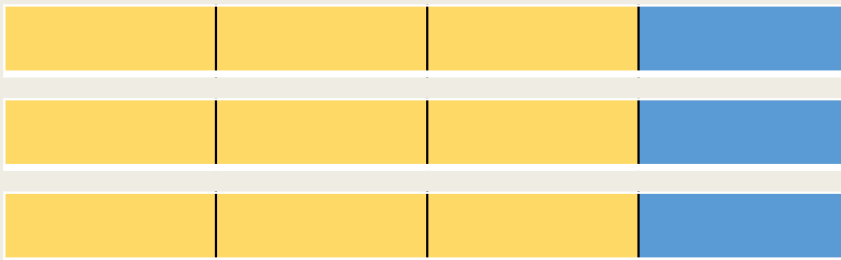
And don't forget to simplify
Before it's time to say
Goodbye!

$$\frac{16}{30} = \frac{8}{15}$$



Multiplying Fractions

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



$$\frac{9}{4}$$

x means...
of means...

If you're timesing by a number that's whole
Times it by the top to reach your goal

$$\frac{3}{5} \times 5 \quad \frac{15}{5}$$

$$\frac{3}{15} \times 4 \quad \frac{12}{15}$$

$$\frac{5}{12} \times 6 \quad \frac{30}{12}$$

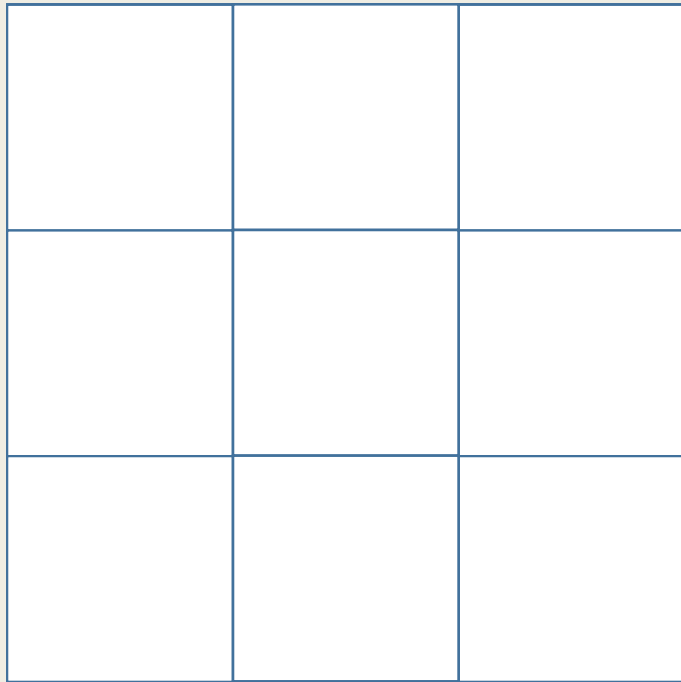


Fraction \times
Fraction

Area

$$3\text{cm} \times 3\text{cm} = 9\text{cm}^2$$

3cm



3cm

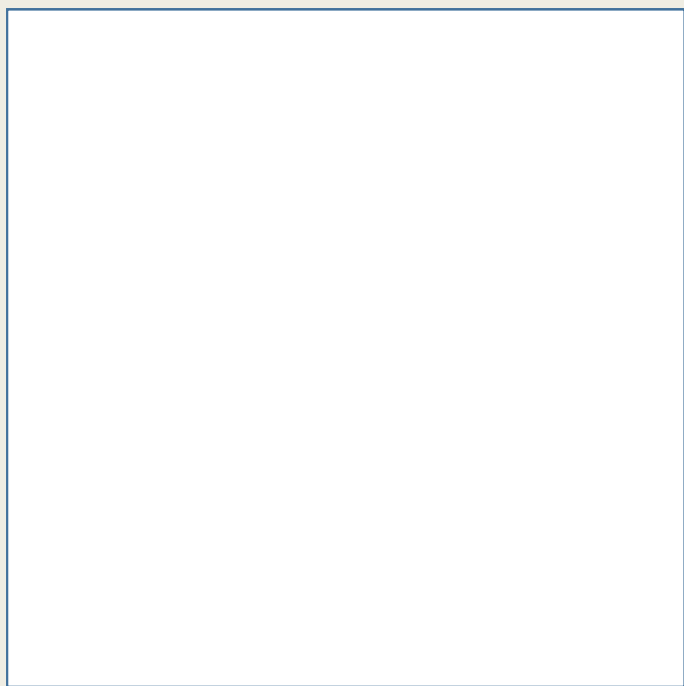


Fraction \times
Fraction

Area

$$1\text{cm} \times 1\text{cm} = 1\text{cm}^2$$

1cm



1cm

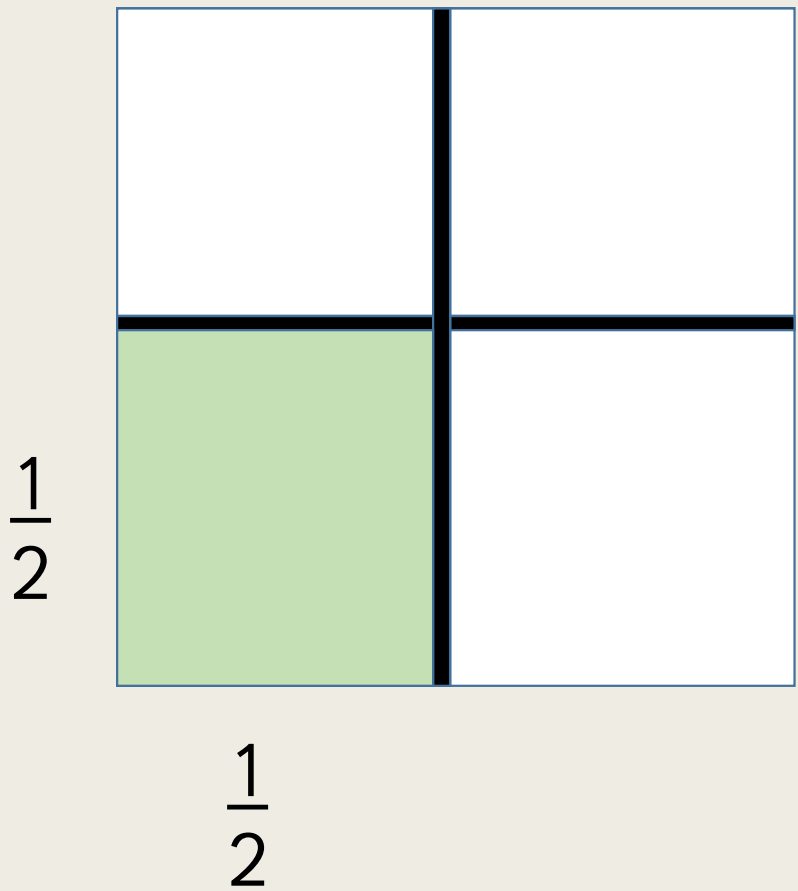


Fraction \times
Fraction

Area

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

**x means...
of means...**

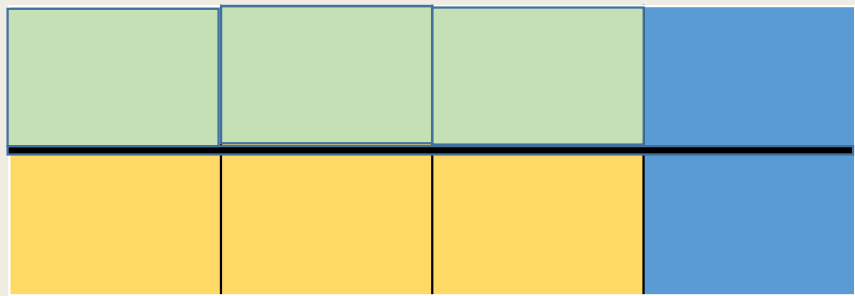


Multiplying Fractions

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

\times

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



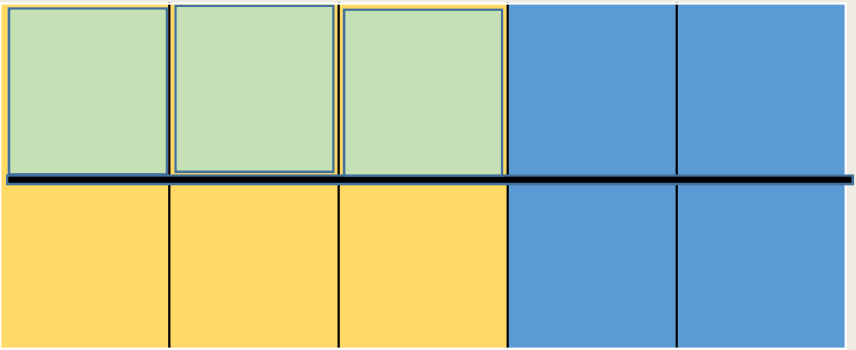
$$\frac{3}{8}$$

**x means...
of means...**

$$\frac{3}{5}$$

\times

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



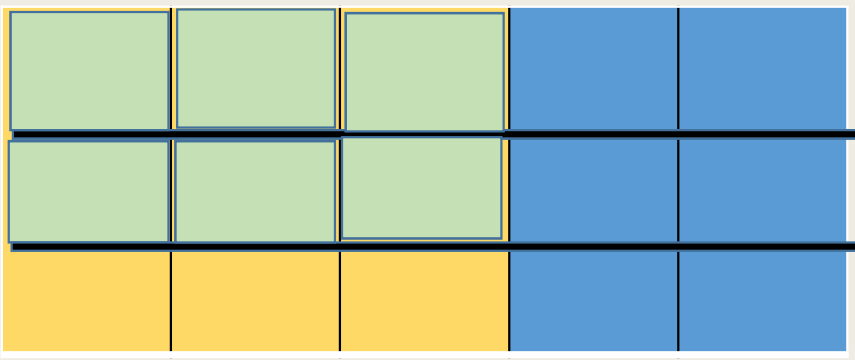
$$\frac{3}{10}$$

**x means...
of means...**



Multiplying Fractions

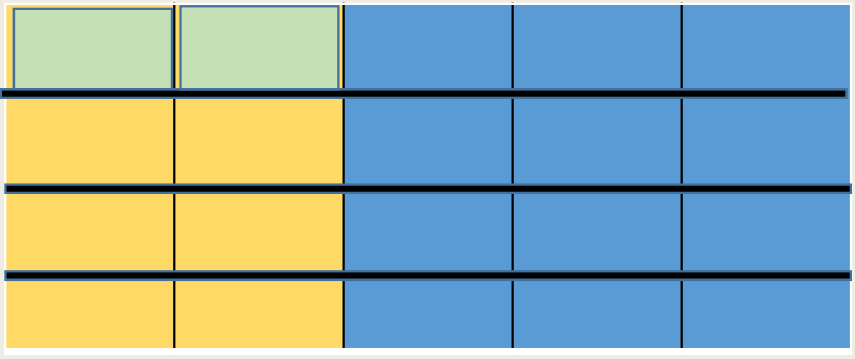
$$\frac{3}{5} \times \frac{2}{3}$$



$$\frac{6}{15}$$

**x means...
of means...**

$$\frac{2}{5} \times \frac{1}{4}$$



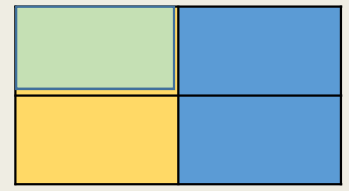
$$\frac{2}{20}$$

**x means...
of means...**



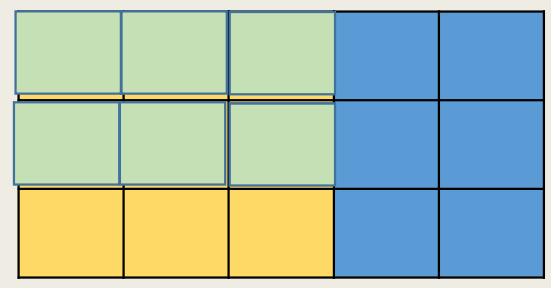
Fraction x Fraction

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

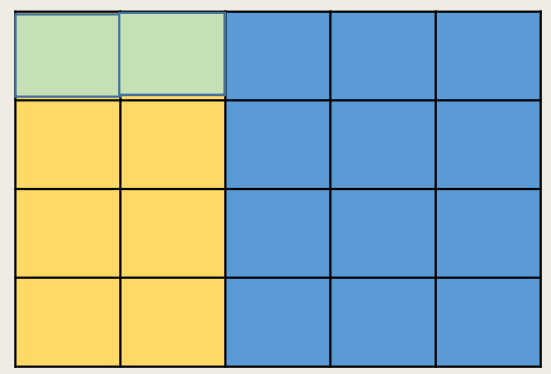


x means...
of means...

$$\frac{3}{5} \times \frac{2}{3} = \frac{6}{15}$$



$$\frac{2}{5} \times \frac{1}{4} = \frac{2}{20}$$



Multiplying fractions?

No big problem

Top times top

And bottom times bottom



Fractions Song

Multiplying fractions?

No big problem

Top times top

And bottom times bottom

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

If you're timesing by a number that's whole

Times it by the top to reach your goal

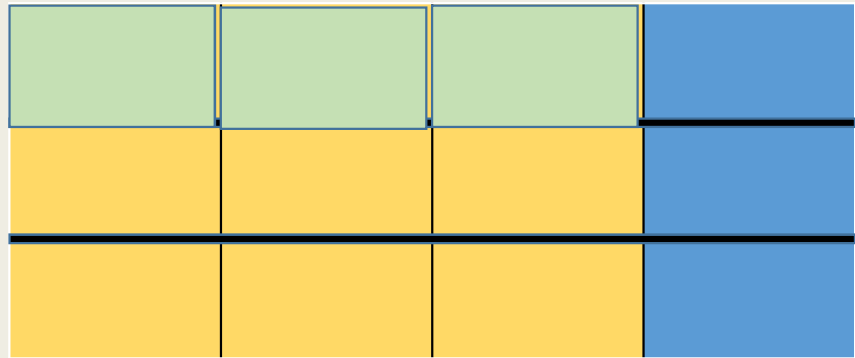
$$\frac{1}{4} \times 3 = \frac{3}{4}$$



Divide Fraction by Whole

Dividing Fractions

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



$$\frac{3}{12}$$

Dividing a fraction by a number that's whole
Times the bottom number then you're on a roll

$$\frac{3}{5} \div 5 = \frac{3}{15}$$

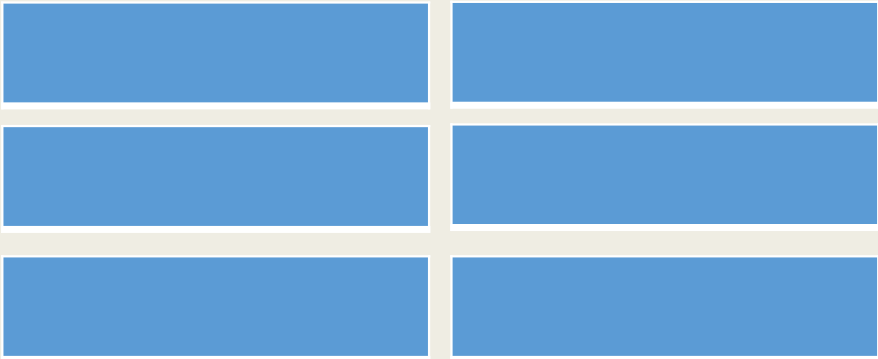
$$\frac{3}{15} \div 4 = \frac{3}{60}$$

$$\frac{5}{12} \div 6 = \frac{5}{72}$$

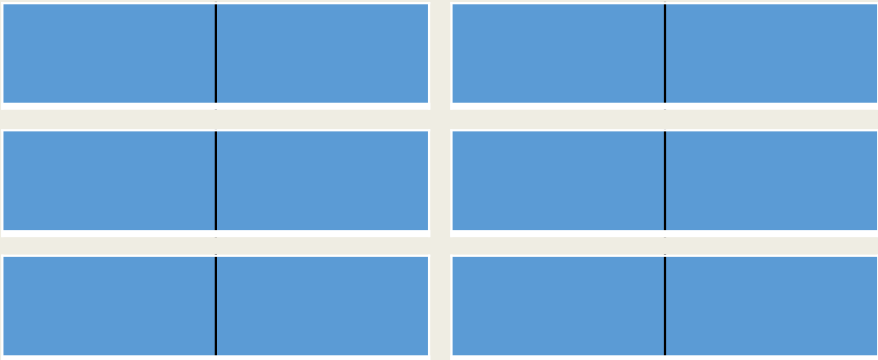


Dividing

$$6 \div 3$$



$$6 \div \frac{1}{2}$$



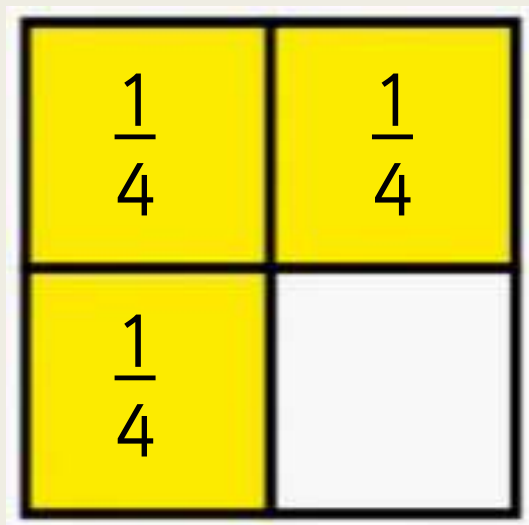
÷ means...

**How many...
go into...**



Dividing Fractions

$$\frac{3}{4} \div \frac{1}{4} = 3$$



If the **denominators** are the **same**, we are dividing pieces that were the same size

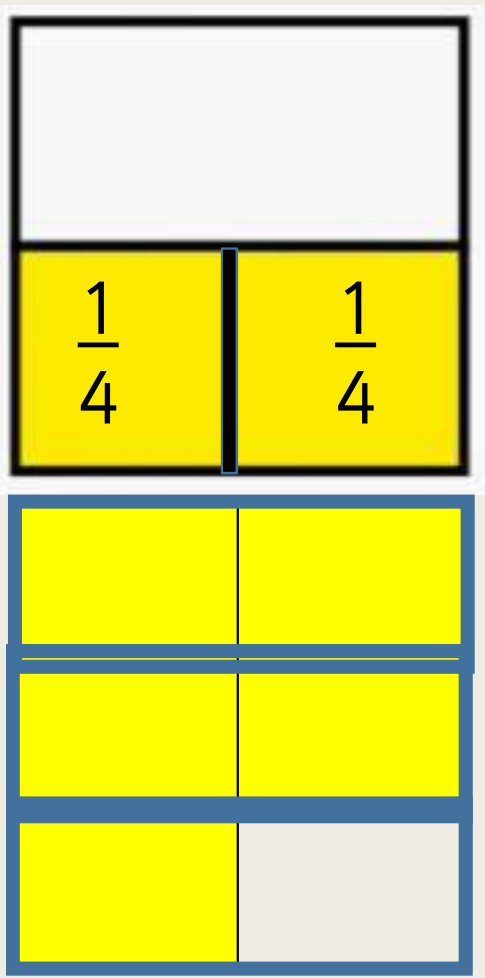
÷ means...

How many... go into...



Dividing Fractions

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



If the **denominators** are the **different**, we can make the denominators the same.

÷ means...

How many... go into...

$$\frac{5}{6} \div \frac{1}{3} \frac{2}{6} = 2 \frac{1}{2} \frac{5}{2} \frac{15}{6}$$

$$\frac{5}{6} \times \frac{3}{1} = \frac{15}{6} = \frac{5}{2} = 2 \frac{1}{2}$$



Fractions Song

Dividing fractions is as easy as pie
Flip the second fraction and multiply

$$\frac{5}{6} \div \frac{1}{3} = \frac{5}{6} \times \frac{3}{1} = \frac{15}{6}$$

Diving a fraction by a number that's whole
Times the bottom number then you're on a roll

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



Fractions Song

Multiplying fractions?

No big problem

Top times top

And bottom times bottom

If you're timesing by a number that's whole

Times it by the top to reach your goal

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

$$\frac{1}{4} \times 3 = \frac{3}{4}$$

Dividing fractions is as easy as pie

Flip the second fraction and multiply

Diving a fraction by a number that's whole

Times the bottom number then you're on a roll

$$\frac{5}{6} \div \frac{1}{3} = \frac{5}{6} \times \frac{3}{1} = \frac{15}{6}$$

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

If adding or subtracting is your game

First the bottom numbers must be the same

Change it by multiply or divide

Do the same to the top you've been advised

$$\frac{1}{5} + \frac{2}{6}$$

$$\frac{6}{30} + \frac{10}{30} = \frac{16}{30}$$

And don't forget to simplify

Before it's time to say

Goodbye!

$$\frac{16}{30} = \frac{8}{15}$$



C G F
Em D Em C

Practice

$$\frac{1}{8}$$

x

$$\frac{4}{5}$$

$$\frac{9}{11}$$

x

$$\frac{7}{9}$$

$$\frac{11}{15}$$

x

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



Practice

$$\frac{1}{8}$$

x

$$\frac{4}{5}$$

$$\frac{4}{40}$$

$$\frac{9}{11}$$

x

$$\frac{7}{9}$$

$$\frac{63}{99}$$

$$\frac{11}{15}$$

x

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

$$\frac{22}{45}$$



Practice

$$\frac{1}{8}$$

x

$$\frac{4}{5}$$

$$\frac{4}{40}$$

$$\frac{9}{11}$$

x

$$\frac{7}{9}$$

$$\frac{63}{99}$$

$$\frac{11}{15}$$

x

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

$$\frac{22}{45}$$



Practice

$$\frac{2}{7} \times 6$$

$$\frac{7}{9} \times 3$$

$$5 \times \frac{8}{9}$$

$$1\frac{2}{7} \times 4$$



Practice

$$\frac{2}{7} \times 6 = \frac{12}{7}$$

$$\frac{7}{9} \times 3 = \frac{21}{9}$$

$$5 \times \frac{8}{9} = \frac{40}{9}$$

$$\frac{9}{7} \times 4 = \frac{36}{7}$$


x wholes
x fraction
recombine

$$1 \frac{2}{7} \times 4$$

$$1 \text{ whole} \times 4 \quad + \quad \frac{2}{7} \times 4$$
$$4 \quad = \quad 1 \frac{1}{7}$$
$$5 \frac{1}{7}$$



Practice

$$\frac{2}{7} \div 6$$

$$\frac{7}{9} \div 3$$

$$\frac{8}{9} \div 5$$

$$1\frac{6}{7} \div 4$$



Practice

$$\frac{2}{7} \div 6 = \frac{2}{42}$$

$$\frac{7}{9} \div 3 = \frac{7}{27}$$

$$\frac{8}{9} \div 5 = \frac{8}{45}$$

$$\frac{13}{7} \div 4 = \frac{13}{28}$$



Practice

$$\frac{1}{7} + \frac{3}{5}$$

$$\frac{2}{3} + \frac{7}{9}$$

$$\frac{6}{7} - \frac{3}{8}$$

$$1\frac{2}{3} - \frac{1}{8}$$



Practice

$$1\frac{5}{35} + 2\frac{26}{35}$$

$$2\frac{18}{27} + 7\frac{39}{27}$$

$$6\frac{48}{56} - 3\frac{27}{56}$$

$$5\frac{40}{24} - 1\frac{37}{24}$$

