

# FRACTIONS

Hi... I am Fractionstein.

Did you know that fractions are not as scary as you might think?

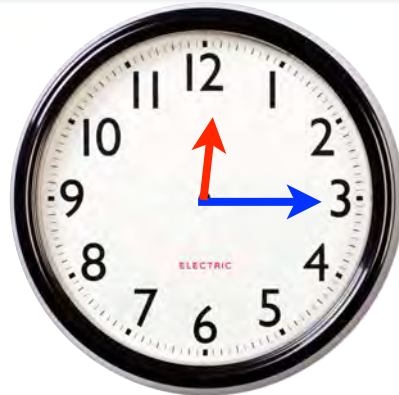
Learn along with me  
and you will be an expert  
at fractions in no time at all!

# What are fractions?

Fractions are parts of whole things.  
We use fractions every day!



Zack played really well in the first **half** of the match!



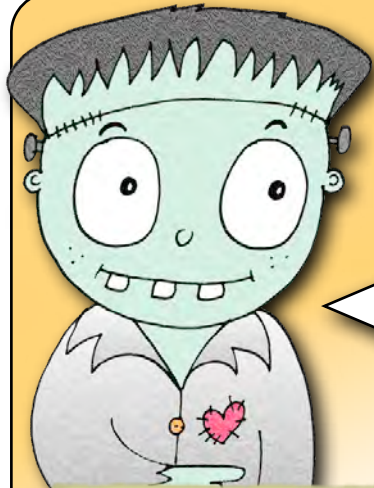
The time is **quarter** past twelve.

Mia is  
**2 ½**  
years old.



Somebody has already eaten **three-quarters** of this pizza!





We write fractions using a numerator and a denominator.

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

Arrows point from the underlined words 'numerator' and 'denominator' to the numbers 3 and 4 respectively.

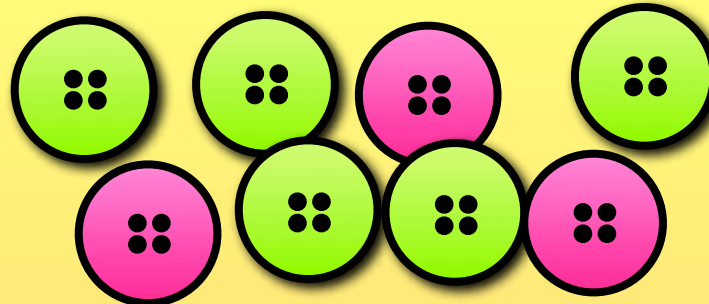
The numerator tells us how many parts we have.

The denominator tells us how many parts something was (or is) divided into.



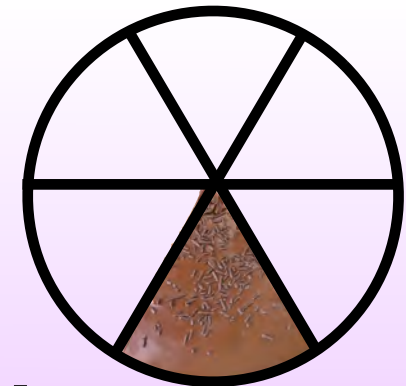
$$\frac{3}{4}$$

3 ← There are three pieces left.  
4 ← There were four pieces.



$$\frac{5}{8}$$

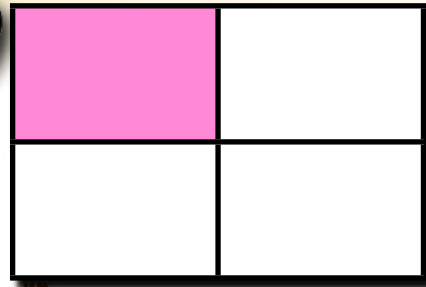
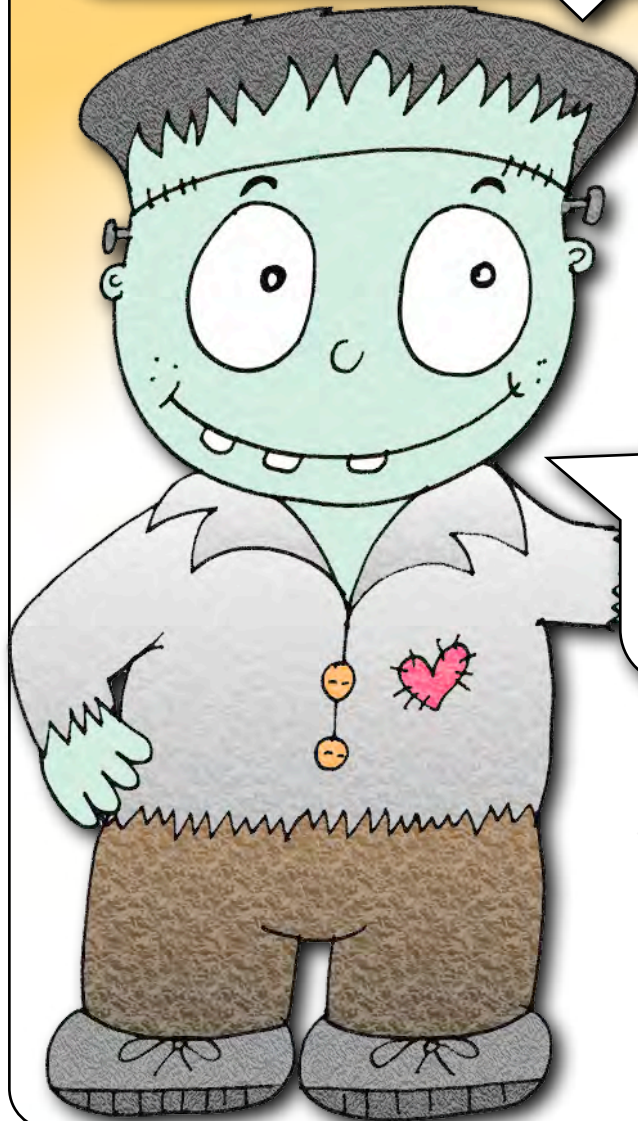
5 ← There are five green buttons.  
8 ← There are eight buttons altogether.



$$\frac{1}{6}$$

1 ← There is one piece of cake left.  
6 ← The cake was cut into six pieces.

There are lots of different types of fractions. Here are some of them...



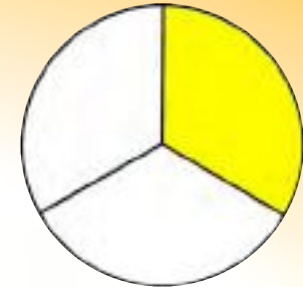
What fraction of my flag is coloured pink?

What do you notice about the size of the pieces in each fraction?



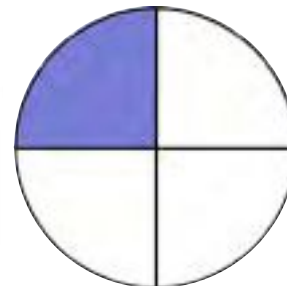
Halves

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



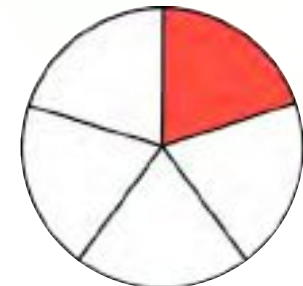
Thirds

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



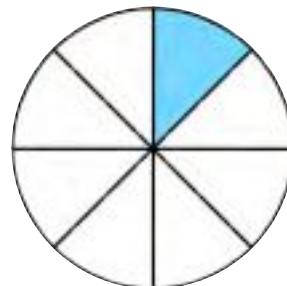
Quarters

$$\frac{1}{4}$$



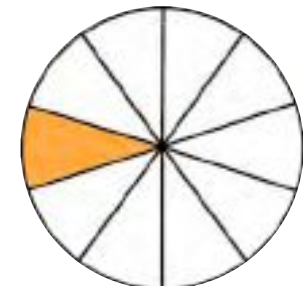
Fifths

$$\frac{1}{5}$$



Eighths

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



Tenths

$$\frac{1}{10}$$

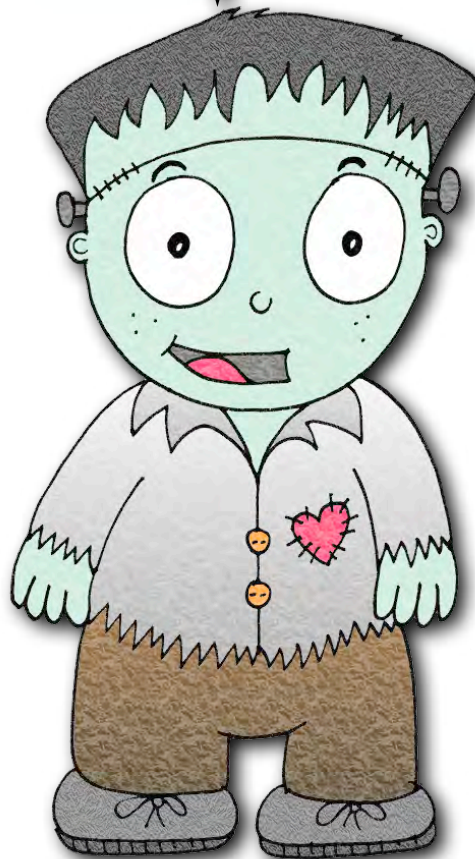
If the denominators are the same, adding and subtracting fractions is easy.

Did you know that we can add and subtract fractions?

If the denominators are different, we have to change the fractions so that they have a common denominator.

$$\frac{1}{5} + \frac{3}{5} = \frac{4}{5}$$

$$\frac{7}{8} - \frac{3}{8} = \frac{4}{8}$$



$$\frac{4}{5} + \frac{3}{4} = ?$$

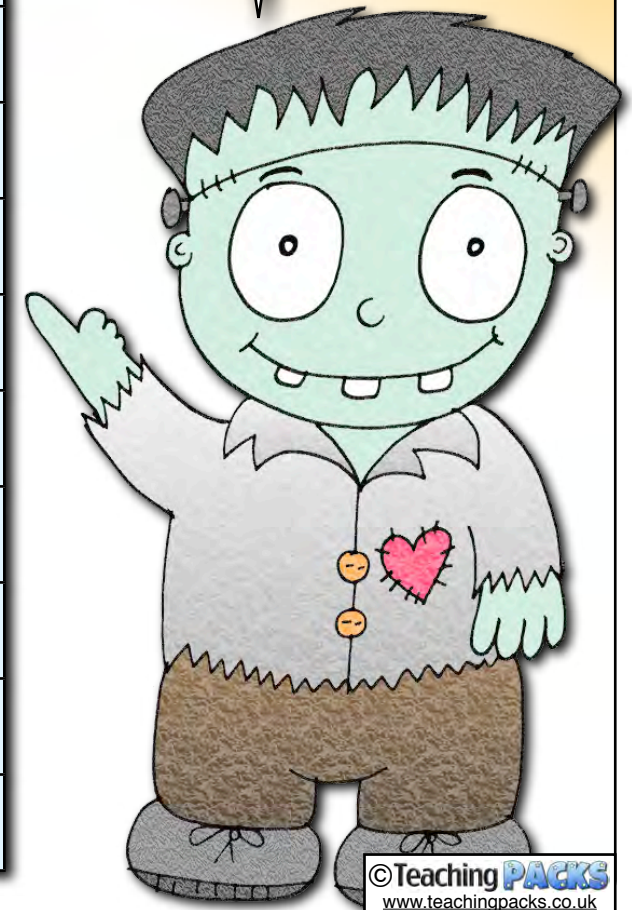
$$\frac{16}{20} + \frac{15}{20} = \frac{31}{20}$$

$$\frac{7}{8} - \frac{1}{3} = ?$$

$$\frac{21}{24} - \frac{8}{24} = \frac{13}{24}$$

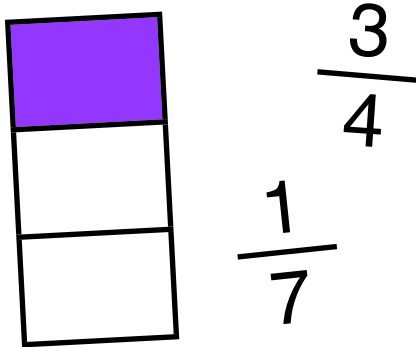
It is helpful if you can remember these fractions, decimals and percentages!

Fraction	Decimal	Percentage
1	1	100%
$\frac{3}{4}$	0.75	75%
$\frac{2}{3}$	0.6	66.6%
$\frac{1}{2}$	0.5	50%
$\frac{1}{3}$	0.3	33.3%
$\frac{1}{4}$	0.25	25%
$\frac{1}{5}$	0.2	20%
$\frac{1}{8}$	0.125	12.5%
$\frac{1}{10}$	0.1	10%
$\frac{1}{100}$	0.01	1%



## fraction

Fractions are parts of whole things.



## numerator

This is the top number in a fraction. It tells us how many parts we have.

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

A red arrow points to the number 3 in the numerator.

## denominator

This is the bottom number in a fraction. It tells us how many parts something was (or is) divided into.

$$\frac{5}{7}$$

A red arrow points to the number 7 in the denominator.

## common denominator

Different fractions that all have the same denominator. This makes it easier to order, add and subtract them.

$$\frac{1}{8} \quad \frac{3}{8} \quad \frac{7}{8}$$

## cancel

Cancelling fractions is when we divide the numerator and denominator by the same number.

$$\frac{10}{100} = \frac{1}{10}$$

Arrows indicate that both the numerator and denominator are divided by 10.

## simplify

Simplifying fractions means finding an equivalent fraction where the numerator and denominator are as small as they can be.

$$\frac{9}{27} = \frac{1}{3}$$

## decimal

Decimal numbers contain a decimal point. They might also include tenths, hundredths and other numbers smaller than one.

$$0.5 \quad 3.04$$
$$27.617$$

## decimal point

A decimal point separates the whole numbers from the numbers that are smaller than one.

$$874.024$$

A red arrow points to the decimal point.

# EQUIVALENT FRACTIONS

1.  $\frac{3}{3} = \frac{12}{18}$

2.  $\frac{8}{8} = \frac{5}{40}$

3.  $\frac{9}{9} = \frac{40}{45}$

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

5.  $\frac{2}{2} = \frac{3}{6}$

6.  $\frac{3}{3} = \frac{10}{30}$

7.  $\frac{5}{5} = \frac{10}{50}$

8.  $\frac{2}{2} = \frac{10}{20}$

9.  $\frac{10}{10} = \frac{45}{50}$

10.  $\frac{10}{10} = \frac{9}{90}$

11.  $\frac{8}{8} = \frac{12}{48}$

12.  $\frac{4}{9} = \frac{\quad}{18}$

13.  $\frac{3}{4} = \frac{\quad}{20}$

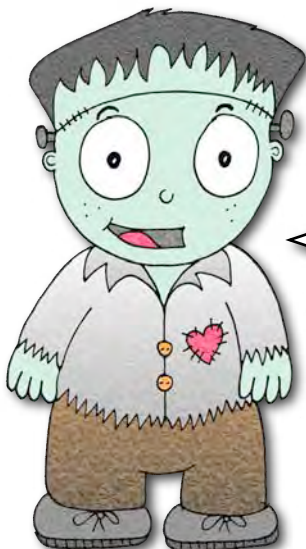
14.  $\frac{3}{3} = \frac{8}{12}$

15.  $\frac{1}{2} = \frac{\quad}{14}$

16.  $\frac{9}{9} = \frac{7}{63}$

17.  $\frac{5}{8} = \frac{\quad}{56}$

18.  $\frac{3}{5} = \frac{\quad}{40}$



Can you work out these equivalent fractions?

# EQUIVALENT FRACTIONS

1.  $\frac{2}{3} = \frac{12}{18}$

2.  $\frac{1}{8} = \frac{5}{40}$

3.  $\frac{8}{9} = \frac{40}{45}$

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

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

6.  $\frac{1}{3} = \frac{10}{30}$

7.  $\frac{1}{5} = \frac{10}{50}$

8.  $\frac{1}{2} = \frac{10}{20}$

9.  $\frac{9}{10} = \frac{45}{50}$

10.  $\frac{1}{10} = \frac{9}{90}$

11.  $\frac{2}{8} = \frac{12}{48}$

12.  $\frac{4}{9} = \frac{8}{18}$

13.  $\frac{3}{4} = \frac{15}{20}$

14.  $\frac{2}{3} = \frac{8}{12}$

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16.  $\frac{1}{9} = \frac{7}{63}$

17.  $\frac{5}{8} = \frac{35}{56}$

18.  $\frac{3}{5} = \frac{24}{40}$

Fractions	
1	
3/4	
2/3	
1/2	
1/3	
1/4	
1/5	
1/8	
1/10	
1/100	

Fractions	
1	
3/4	
2/3	
1/2	
1/3	
1/4	
1/5	
1/8	
1/10	
1/100	

Fractions	
1	
3/4	
2/3	
1/2	
1/3	
1/4	
1/5	
1/8	
1/10	
1/100	

one whole

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

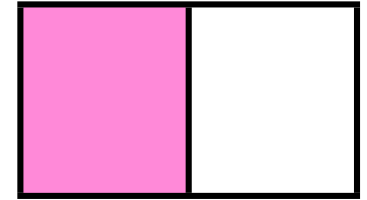


1

100%

one half

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

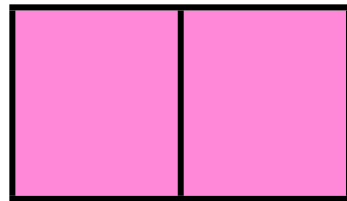


0.5

50%

two halves

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

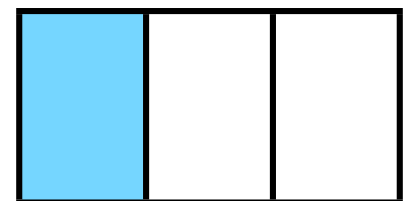


1

100%

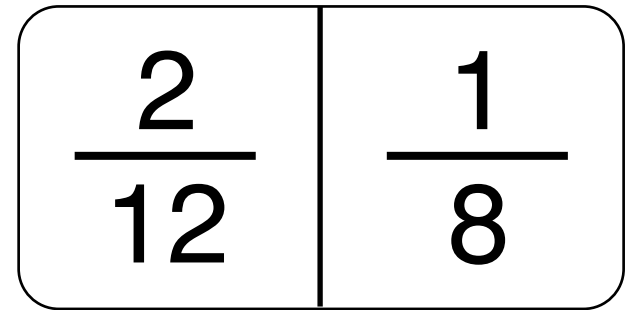
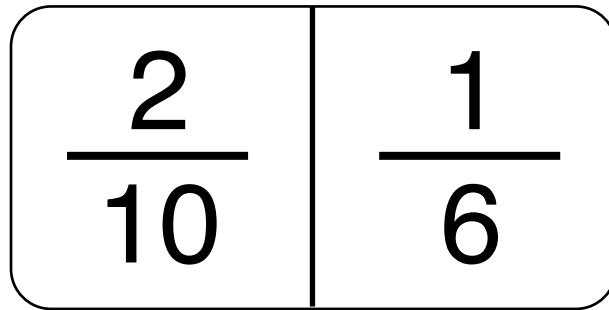
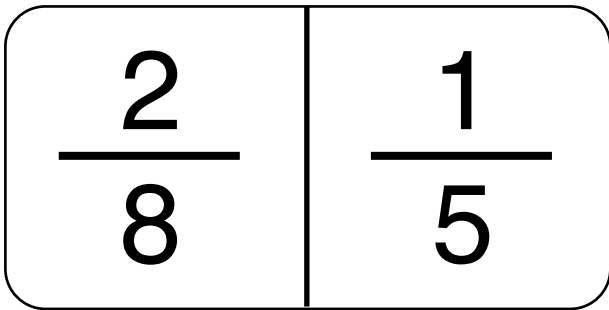
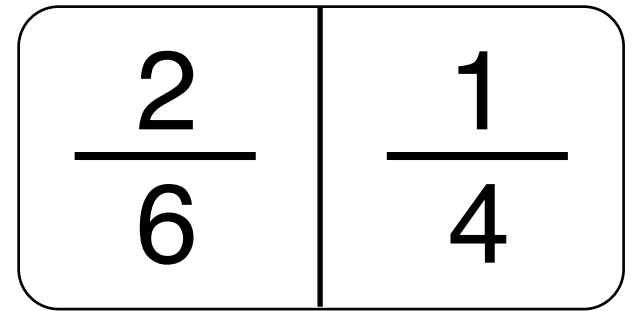
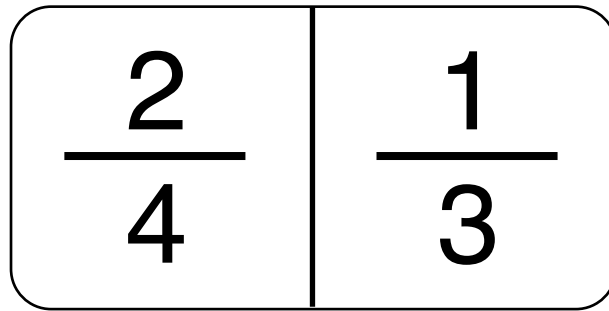
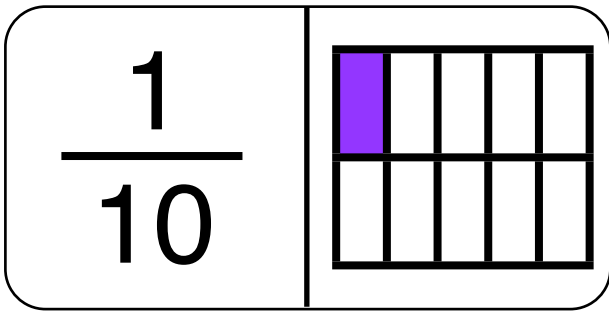
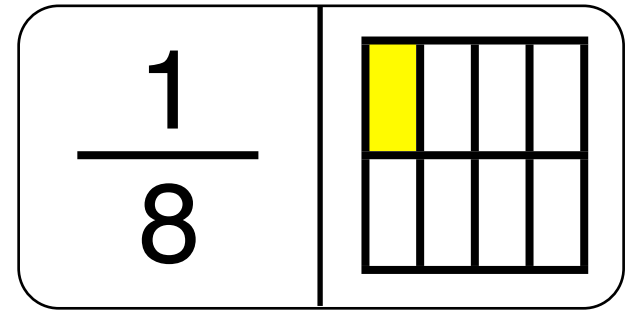
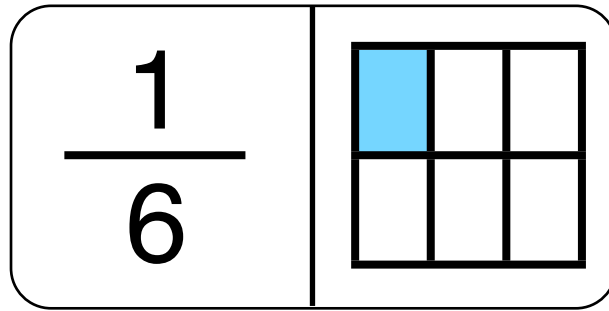
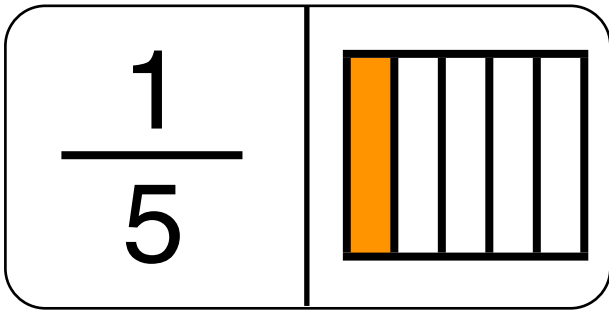
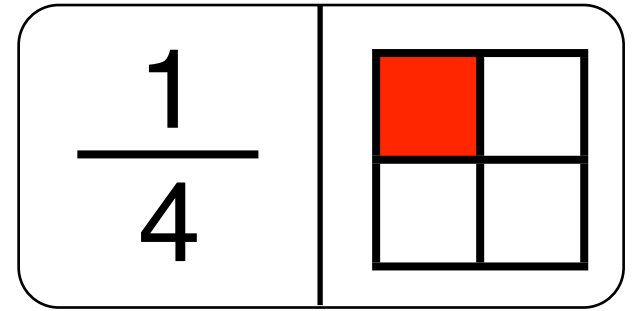
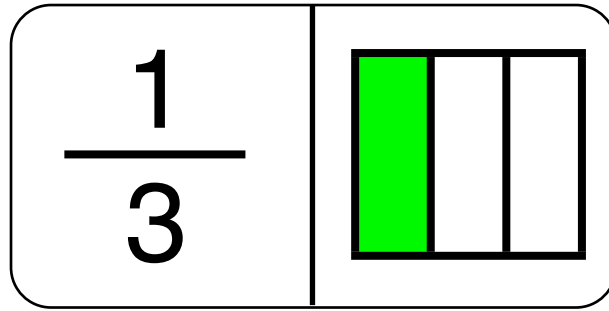
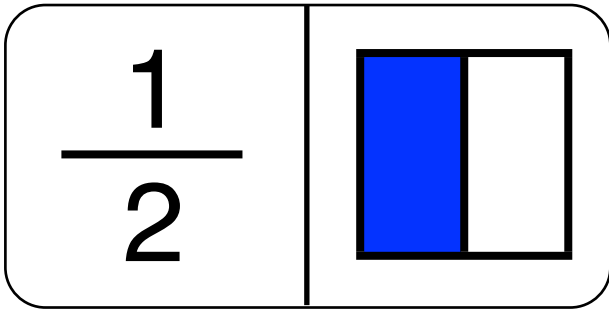
one third

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



0. $\dot{3}$

33. $\dot{3}$ %



<p><u>Is this the answer?</u></p> <p>5</p>	<p><u>The Next Question...</u></p> <p>What is one half as a decimal?</p>	<p><u>Is this the answer?</u></p> <p>0.5</p>	<p><u>The Next Question...</u></p> <p>What is the top number in a fraction called?</p>
<p><u>Is this the answer?</u></p> <p>The Numerator</p>	<p><u>The Next Question...</u></p> <p>How many tenths are there in one fifth?</p>	<p><u>Is this the answer?</u></p> <p>2</p>	<p><u>The Next Question...</u></p> <p>What is 97% as a decimal?</p>
<p><u>Is this the answer?</u></p> <p>0.97</p>	<p><u>The Next Question...</u></p> <p>How many quarters are in one whole?</p>	<p><u>Is this the answer?</u></p> <p>4</p>	<p><u>The Next Question...</u></p> <p>How many tenths are in three fifths?</p>
<p><u>Is this the answer?</u></p> <p>6</p>	<p><u>The Next Question...</u></p> <p>What is half of a fifth?</p>	<p><u>Is this the answer?</u></p> <p>One tenth</p>	<p><u>The Next Question...</u></p> <p>What is 0.05 as a percentage?</p>

1

$\frac{1}{2}$

$\frac{1}{2}$

$\frac{1}{3}$

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