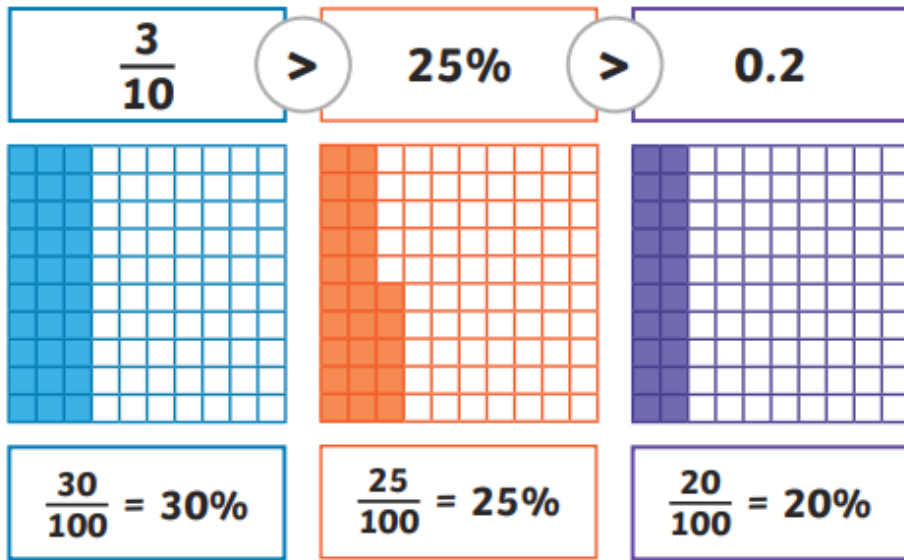


# NUMICON – UNITS 7 TO 9 KNOWLEDGE ORGANISER

## Order Fractions, Decimals and Percentages



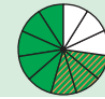
## Fractions

### Adding and Subtracting Proper Fractions

#### Same Denominators



$$\frac{4}{7} + \frac{2}{7} = \frac{6}{7}$$

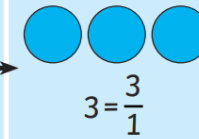


$$\frac{8}{11} - \frac{3}{11} = \frac{5}{11}$$

#### Multiplying Fractions by Whole Numbers



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



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

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

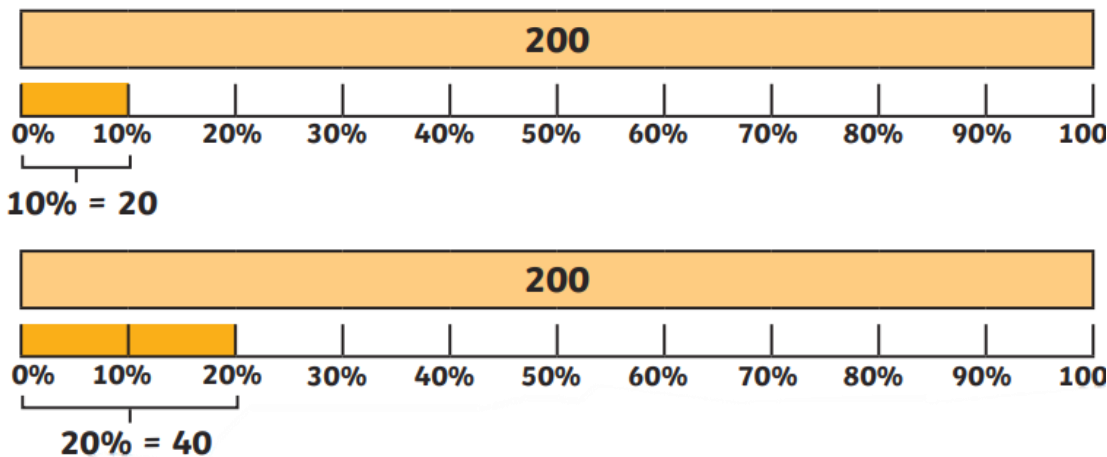
## Finding a Percentage of an Amount

$$50\% = \frac{1}{2} \text{ so we can divide by 2}$$

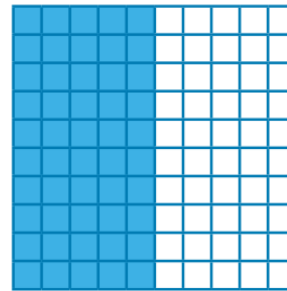
$$10\% = \frac{1}{10} \text{ so we can divide by 10}$$

$$25\% = \frac{1}{4} \text{ so we can divide by 4}$$

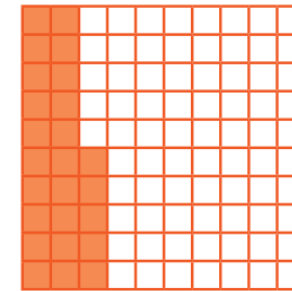
$$1\% = \frac{1}{100} \text{ so we can divide by 100}$$



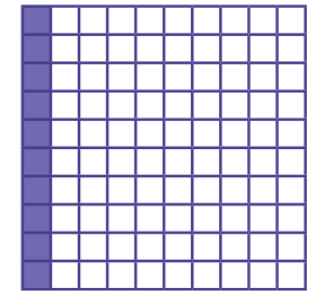
## Equivalent Fractions, Decimals and Percentages



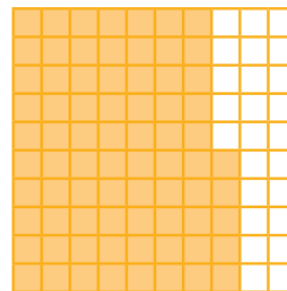
$$\frac{50}{100} = \frac{1}{2} = 0.5 = 50\%$$



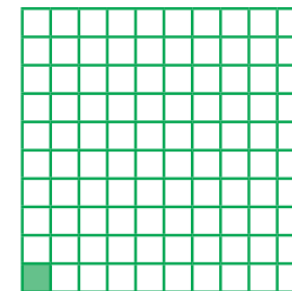
$$\frac{25}{100} = \frac{1}{4} = 0.25 = 25\%$$



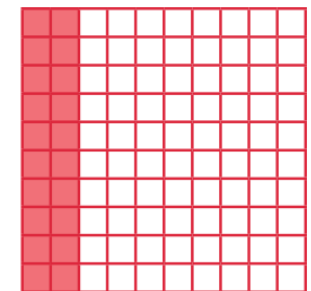
$$\frac{10}{100} = \frac{1}{10} = 0.1 = 10\%$$



$$\frac{75}{100} = \frac{3}{4} = 0.75 = 75\%$$



$$\frac{1}{100} = 0.01 = 1\%$$



$$\frac{20}{100} = \frac{2}{10} = 0.2 = 20\%$$

## Decimals

### Fractions to Decimals

$$\frac{7}{20} = \frac{35}{100} \text{ or } 0.35$$

*(Multiplied numerator and denominator by 5)*

$$\frac{7}{25} = \frac{28}{100} \text{ or } 0.28$$

*(Multiplied numerator and denominator by 4)*

$$\frac{7}{50} = \frac{14}{100} \text{ or } 0.14$$

*(Multiplied numerator and denominator by 2)*

$$\frac{8}{200} = \frac{4}{100} \text{ or } 0.04$$

*(Divided numerator and denominator by 2)*

When the denominator is not a factor or multiple of 100

$$\frac{7}{8} = 7 \div 8$$

	0	8	7	5
8	7	0	6	4

### Place Value

Tens	Ones	tenths	hundredths	thousandths
	1 1 1	0.1 0.1 0.1 0.1	0.01 0.01	0.001 0.001 0.001 0.001 0.001 0.001

$$3 + \frac{4}{10} + \frac{2}{100} + \frac{6}{1000} \longleftrightarrow 3.426 \longleftrightarrow 3 + 0.4 + 0.02 + 0.006$$

1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009

### Dividing Decimals by Integers

$$8.12 \div 4$$

	2	0	3	
4	8	<del>1</del>	<sup>1</sup> 2	

$$6.93 \div 3 = 2.31$$

Ones	tenths	hundredths
1 1	0.1 0.1 0.1	0.01
1 1	0.1 0.1 0.1	0.01
1 1	0.1 0.1 0.1	0.01

# NUMICON – UNITS 7 TO 9 KNOWLEDGE ORGANISER

## Decimals

### Multiplying and Dividing by 10, 100 and 1000

Thousands	Hundreds	Tens	Ones	tenths	hundredths	thousandths
			2	0	8	
		← × 10	2	0	8	
		2	0	8	→ + 10	
			2	0	8	

Thousands	Hundreds	Tens	Ones	tenths	hundredths	thousandths
		4	3	5		
	← × 100	4	3	5		
4	3	5	0	5	→ + 100	
		4	3	5		

Thousands	Hundreds	Tens	Ones	tenths	hundredths	thousandths
			1	3	5	1
	← × 1000		1	3	5	1
1	3	5	1	3	5	1
			1	3	5	1
			1	3	5	1
			1	3	5	1
			1	3	5	1

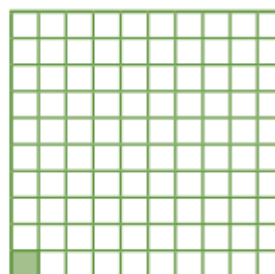
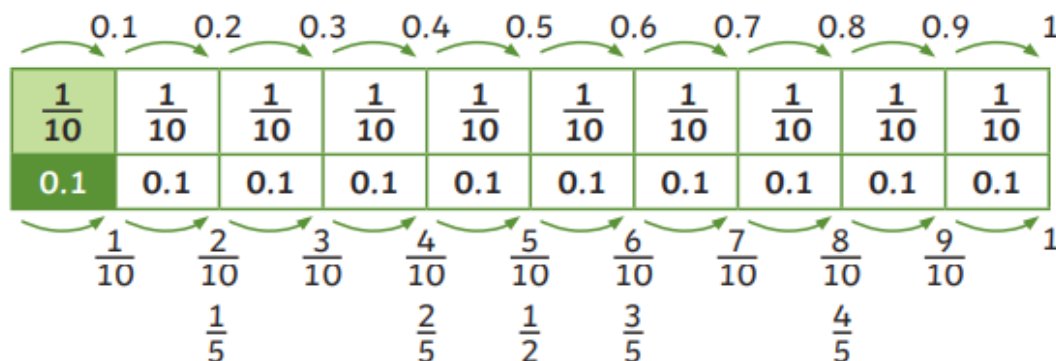
### Multiplying Decimals by Integers

$$3.21 \times 3 = 9.63$$

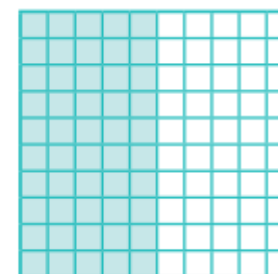
Ones	tenths	hundredths
1 1 1	0.1 0.1	0.01
1 1 1	0.1 0.1	0.01
1 1 1	0.1 0.1	0.01

	3	.	4	5
×				3
1	0	.	3	5
	1		1	

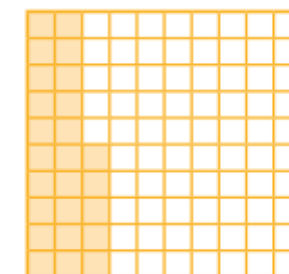
### Decimal Numbers as Fractions



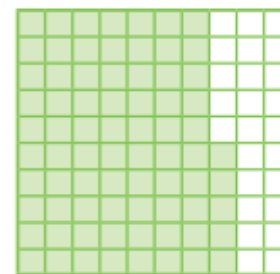
$$\frac{1}{100} = 0.01$$



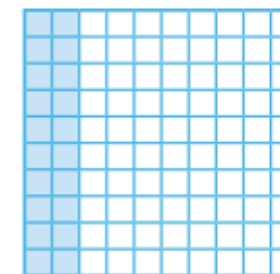
$$\frac{50}{100} = \frac{1}{2} = 0.5$$



$$\frac{25}{100} = \frac{1}{4} = 0.25$$



$$\frac{75}{100} = \frac{3}{4} = 0.75$$



$$\frac{20}{100} = \frac{1}{5} = 0.2$$

$$\frac{1}{3} = 0.33$$

$$\frac{1}{8} = 0.125$$

$$\frac{1}{1000} = 0.001$$

# NUMICON – UNITS 7 TO 9 KNOWLEDGE ORGANISER

## Quiz 1

Work out the following additions and subtractions:

$$\frac{2}{10} + \frac{3}{10}$$

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

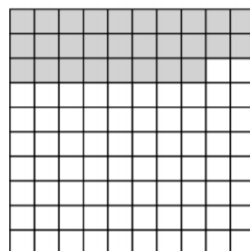
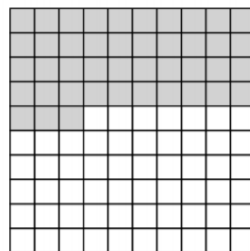
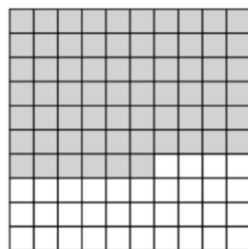
$$\frac{4}{12} + \frac{6}{12}$$

$$\frac{1}{14} + \frac{8}{14}$$

Is  $\frac{2}{8} + \frac{4}{8}$  the same as  $\frac{3}{4}$ ?  
Explain why or why not.

## Quiz 2

What **decimal** of the grids below is shaded?



## Quiz 3

Write the equivalent **decimal number** for each fraction:

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

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

$$\frac{9}{10}$$

$$\frac{2}{5}$$

Write the equivalent **fraction** for each decimal number:

0.1

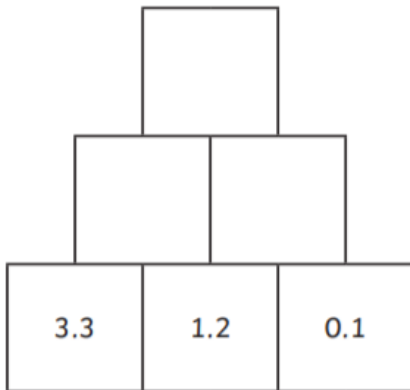
0.7

0.8

0.35

## Quiz 4

Fill in the empty boxes with decimal numbers:



## Quiz 5

Calculate 35% of 120

What is 40% of £2.50?

What is 3% of 90?

Find 15% of 400

## Quiz 6

Work out each multiplication. Show your work.

$$3 \times \frac{5}{8} =$$

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

# NUMICON – UNITS 7 TO 9 KNOWLEDGE ORGANISER

## Quiz 7

Write the following decimals in order of size. Start with the **smallest** number.

0.42    0.4    0.415    0.48    0.469

0.08    0.25    0.81    0.2    0.68

0.507    0.75    0.5    0.078

## Quiz 8

Work out:

$$17.8 + 2.53 =$$

$$6.2 - 1.77 =$$

$$1.5 + 0.36 + 10.4 =$$

$$9.2 - 1.34 =$$

$$0.8 + 0.113 + 0.438 + 0.231 =$$

## Quiz 9

Work out each multiplication. Show your work.

$$3 \times \frac{3}{6} =$$

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