

In maths we are learning about...

Decimals

Knowledge Organiser

Key Vocabulary

decimal place

decimal fraction

recurring decimal

equivalent fraction

tenth

sharing

partitioning

exchanging

rounding to 3d.p.

hundredth

thousandth

equal to

remainder

grouping

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 |

Fractions to Decimals

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

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

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

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

When the denominator is not a factor or multiple of 100

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

| | | | | |
|---|---|---|---|---|
| | 0 | 8 | 7 | 5 |
| 8 | 7 | 0 | 0 | 0 |

Dividing Decimals by Integers

$$8.12 \div 4$$

| | | | |
|---|---|--------------|---|
| | | | |
| | 2 | 0 | 3 |
| 4 | 8 | 1 | 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 |

Decimals

Knowledge Organiser

Multiplying and Dividing by 10, 100 and 1000

| Thousands | Hundreds | Tens | Ones | tenths | hundredths | thousandths |
|-----------|----------|------|------|--------|------------|-------------|
| | | 2 | 0 | 8 | | |
| | | 2 | 0 | 8 | | |
| | | 2 | 0 | 8 | | |

| Thousands | Hundreds | Tens | Ones | tenths | hundredths | thousandths |
|-----------|----------|------|------|--------|------------|-------------|
| | 4 | 3 | 5 | | | |
| 4 | 3 | 5 | 0 | | | |
| | 4 | 3 | 5 | | | |

| Thousands | Hundreds | Tens | Ones | tenths | hundredths | thousandths |
|-----------|----------|------|------|--------|------------|-------------|
| | 1 | 3 | 5 | 1 | | |
| 1 | 3 | 5 | 1 | | | |
| | 1 | 3 | 5 | 1 | | |

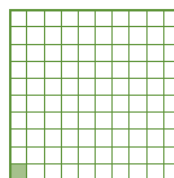
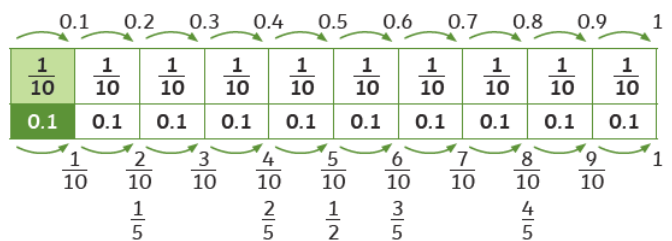
Multiplying Decimals by Integers

$$3.21 \times 3 = 9.63$$

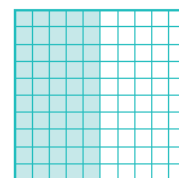
| | | | |
|---|---|---|---|
| | 3 | 4 | 5 |
| x | | | 3 |
| 1 | 0 | 3 | 5 |
| | 1 | 1 | |

| 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 |

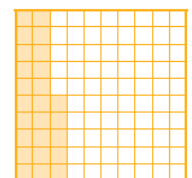
Decimal Numbers as Fractions



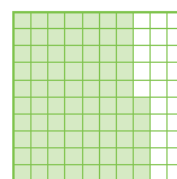
$$\frac{1}{100} = 0.01$$



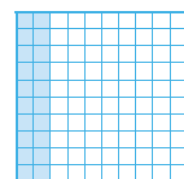
$$\frac{50}{100} = \frac{1}{2} = 0.5$$



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



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



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

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

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

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