

# PLACE VALUE, DECIMALS & USING SCALES

## Key Concept

Multiply/Divide by powers of 10

10 000	1000	100	10	1	●	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
					●			

### Multiplying

X 10  
X 100  
X 1000

digits move LEFT 1 space  
digits move LEFT 2 spaces  
digits move LEFT 3 spaces



### Dividing

÷ 10  
÷ 100  
÷ 1000

digits move RIGHT 1 space  
digits move RIGHT 2 spaces  
digits move RIGHT 3 spaces



## Key Words

**Decimal:** A number that contains a point.

**Metric measure:** The unit used to measure length, mass etc.

**Scale:** The conversion to convert between drawings and real life sizes.

## Examples

### Ordering Decimals

0.3, 0.21, 0.305, 0.38, 0.209

Add zero's so that they all have the same number of decimal places.

0.300, 0.210, 0.305, 0.380, 0.209

Then they can be placed in order:

0.209, 0.21, 0.3, 0.305, 0.38

### Multiplying/Dividing by powers of 10

$3.4 \times 100$

100	10	1	●	$\frac{1}{10}$
		3	●	4
3	4	0	●	

# sparx

M704, M112,  
M113, M522,  
M487

## Tip

- Add digits when ordering decimals.
- The number of zero's tells you the number of places to move the digits.

## Questions

- Order 1.52, 1.508, 1.5, 1.05, 1.51
- Work out a)  $1.35 \times 10$  b)  $0.6 \times 100$  c)  $4.5 \div 100$
- Convert a) 36 mm to cm b) 7 cm to mm c) 450 cm to m  
d) 620 g to kg e) 4.2 kg to g f) 0.7 kg to g

ANSWERS: 1) 1.05, 1.5, 1.508, 1.51, 1.52 2) a) 13.5 b) 60 c) 0.045  
3) a) 3.6cm b) 70mm c) 4.5m d) 0.62kg e) 4200 f) 700g

# ORDER FRACTIONS, DECIMALS & INTEGERS

## Key Concept

### FDP Equivalence

F	D	P
$\frac{1}{100}$	0.01	1%
$\frac{1}{10}$	0.1	10%
$\frac{1}{5}$	0.2	20%
$\frac{1}{4}$	0.25	25%
$\frac{1}{2}$	0.5	50%
$\frac{3}{4}$	0.75	75%

## Key Words

**Integer:** Whole number.

**Ascending Order:**

Place in order, smallest to largest.

**Descending Order:**

Place in order, largest to smallest.

**Inequality:** Statement that contains  $<$ ,  $>$ ,  $\leq$ ,  $\geq$ , to show which quantity is greatest/smallest.

## Tip

- Convert all numbers to the same form, either fractions, decimals or percentages.

- If using a calculator convert them all to decimals.

## Examples

To order these fractions, make the denominators the same.

$\frac{3}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{7}{8}$	$\frac{1}{4}$
↓	↓	↓	↓	↓
$\frac{6}{8}$	$\frac{3}{8}$	$\frac{4}{8}$	$\frac{7}{8}$	$\frac{2}{8}$
↓	↓	↓	↓	↓
$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$
↓	↓	↓	↓	↓
$\frac{2}{8}$	$\frac{3}{8}$	$\frac{4}{8}$	$\frac{7}{8}$	$\frac{2}{8}$

To order these, convert them all to decimals.

56%	$\frac{3}{4}$	0.871	23%	$\frac{6}{7}$
0.56	0.75	0.871	0.23	0.857...
2	3	5	1	4
23%	56%	$\frac{3}{4}$	$\frac{6}{7}$	0.871

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M527, M522,  
M335, M264

## Questions

- 1)  $\frac{2}{3}, \frac{3}{4}, \frac{5}{6}, \frac{7}{12}$     2)  $\frac{3}{7}, \frac{1}{2}, 0.49, 0.2$     3)  $\frac{7}{32}, 25\%, 0.05, \frac{29}{100}$

ANSWERS: 1)  $\frac{12}{3}, \frac{9}{4}, \frac{10}{6}, \frac{14}{12}$     2)  $0.2, \frac{3}{7}, \frac{1}{2}, 0.49, \frac{2}{10}$     3)  $0.05, \frac{32}{7}, 25\%, \frac{100}{29}$