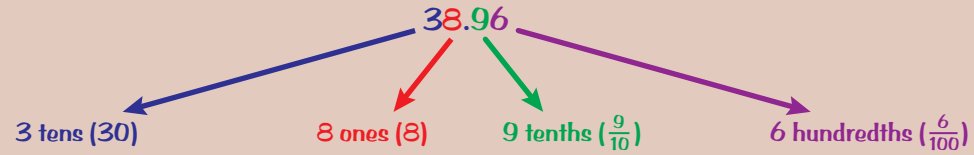
Tenths and hundredths

A decimal point separates whole numbers from decimal fractions.



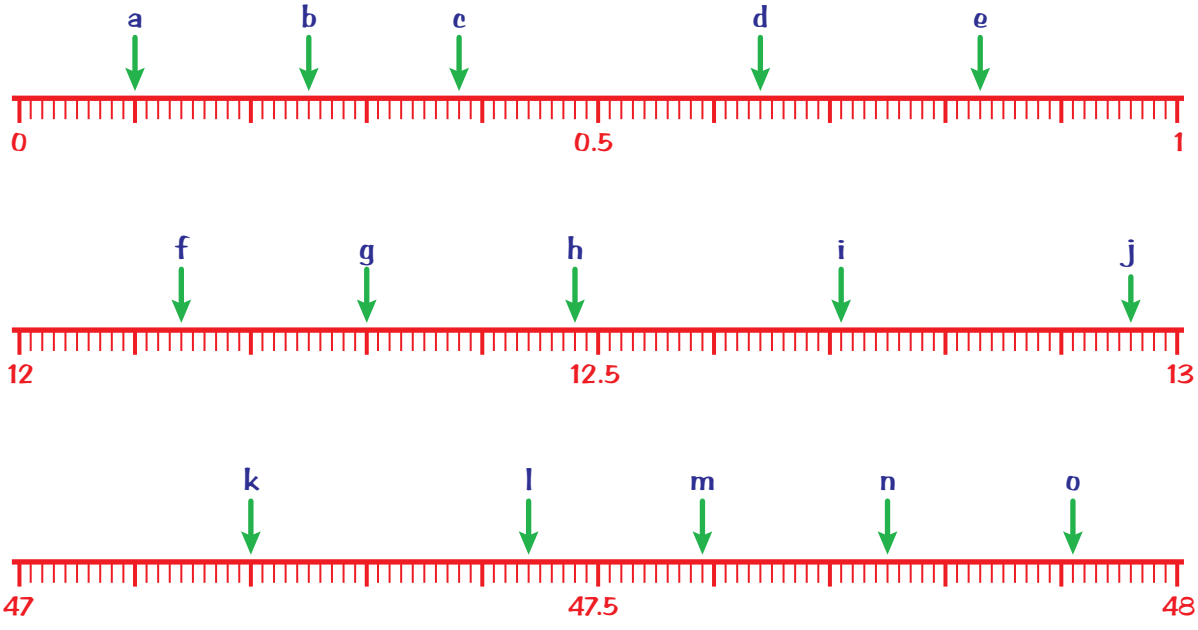
$30 + 8 + \frac{9}{10} + \frac{6}{100} = 38.96$

This is read as thirty-eight point nine six.

1 Copy and complete this chart.

Number		Tens	Units	.	tenths	hundredths
37.28		3	7	.	2	8
51.06		5		.	0	
19.47			9	.		7
68.14				.		
80.13				.		
74.85						

2 Write the decimal number each arrow points to.



3 Read the decimal numbers from question **2**. Write each number in words.

4 Write these as decimals.

a) $9\frac{7}{10}$ **b)** $12\frac{1}{10}$ **c)** $15\frac{35}{100}$ **d)** $27\frac{9}{100}$

e) $\frac{97}{100}$ **f)** $11\frac{47}{100}$ **g)** $38\frac{2}{100}$ **h)** $\frac{5}{100}$

5 Write these as decimals.

a) 9 tenths **b)** 3 tenths **c)** 45 hundredths **d)** 19 hundredths

e) 8 tenths **f)** 7 hundredths **g)** 87 hundredths **h)** 61 hundredths

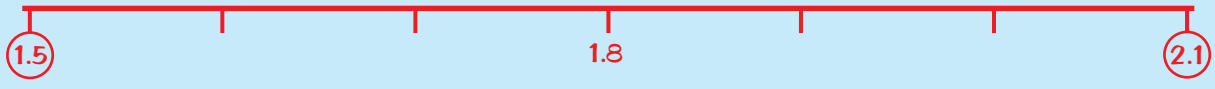
6 Write the value of the digit 7 in each number. Choose from 70, 7 or $\frac{7}{10}$ or $\frac{7}{100}$.

a) 87.45 **b)** 13.7 **c)** 72.12 **d)** 90.74

e) 36.27 **f)** 47.19 **g)** 1.87 **h)** 89.07

Try this

Find pairs of numbers that have 1.8 as their halfway position.



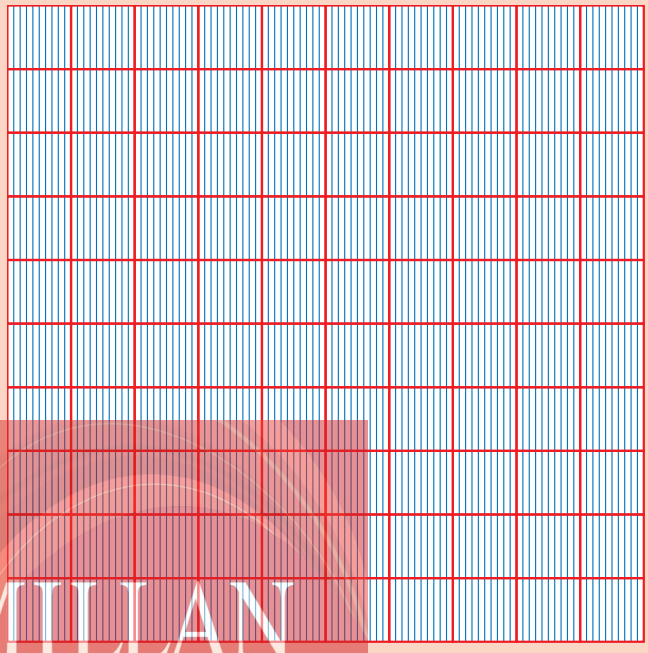
Can the pair of numbers be whole numbers?

Thousandths

Tens	Ones		tenths	hundredths	thousandths
1	8	.	3	1	5
(10)	(8)		$(\frac{3}{10})$	$(\frac{1}{100})$	$(\frac{5}{1000})$

We read 18.315 as **eighteen point three one five**.

The value of the digit 5 is 5 thousandths or $\frac{5}{1000}$.
This is a small fraction!



1 Write each number in words. Underline the word with the digit coloured red.

a) 0.473 **b)** 5.981 **c)** 62.359 **d)** 0.702

e) 44.008 **f)** 1.105 **g)** 96.283 **h)** 35.169

2 Write these fractions as decimals.

a) $\frac{7}{1000}$ **b)** $\frac{90}{1000}$ **c)** $2\frac{300}{1000}$ **d)** $17\frac{1}{1000}$ **e)** $\frac{450}{1000}$ **f)** $\frac{525}{1000}$

g) $12\frac{800}{1000}$ **h)** $68\frac{950}{1000}$ **i)** $19\frac{325}{1000}$ **j)** $\frac{45}{1000}$ **k)** $3\frac{572}{1000}$ **l)** $29\frac{807}{1000}$

3 Count in thousandths. Write the next two numbers.

a) 82.311 82.312 82.313 82.314 ☐ ☐

b) 40.059 40.06 40.061 40.062 ☐ ☐

c) 3.275 3.276 3.277 3.278 ☐ ☐

d) 16.026 16.027 16.028 16.029 ☐ ☐

4 This number line shows that 6.726 comes between 6.72 and 6.73 on a number line.

Draw number lines to show these decimals.

a) 3.127 **b)** 10.862 **c)** 23.524

d) 15.966 **e)** 16.511 **f)** 27.729

5 Each of these digits is used to make different numbers.

7 1 9 3 8

Write these decimal numbers.

a) nineteen point three eight seven
b) seventy-three point nine eight one
c) thirty-one point seven eight nine
d) seventeen and three hundred and eighty-nine thousandths
e) thirty-eight and seven hundred and ninety-one thousandths

Try this

Rearrange each set of digits to make the number nearest to 1.

a) 8 1 0 2 → □.□□□

b) 1 5 1 8 → □.□□□

c) 0 2 3 5 → □.□□□

d) 9 0 6 3 → □.□□□

Multiplying and dividing by 10 and 100

Follow these rules for multiplying and dividing numbers by 10 and 100.

Multiplying by 10
Move the digits **one** place to the left.
6.148 × 10 =

61.48

Multiplying by 100
Multiplying by 100 is the same as multiplying by 10 and then multiplying by 10 again.

Move the digits **two** places to the left.
0.845 × 100 =

84.5

Dividing by 10
Move the digits **one** place to the right.
3.48 ÷ 10 =

0.348

Dividing by 100
Dividing by 100 is the same as dividing by 10 and then dividing by 10 again.

Move the digits **two** places to the right.
36.5 ÷ 100 =

0.365

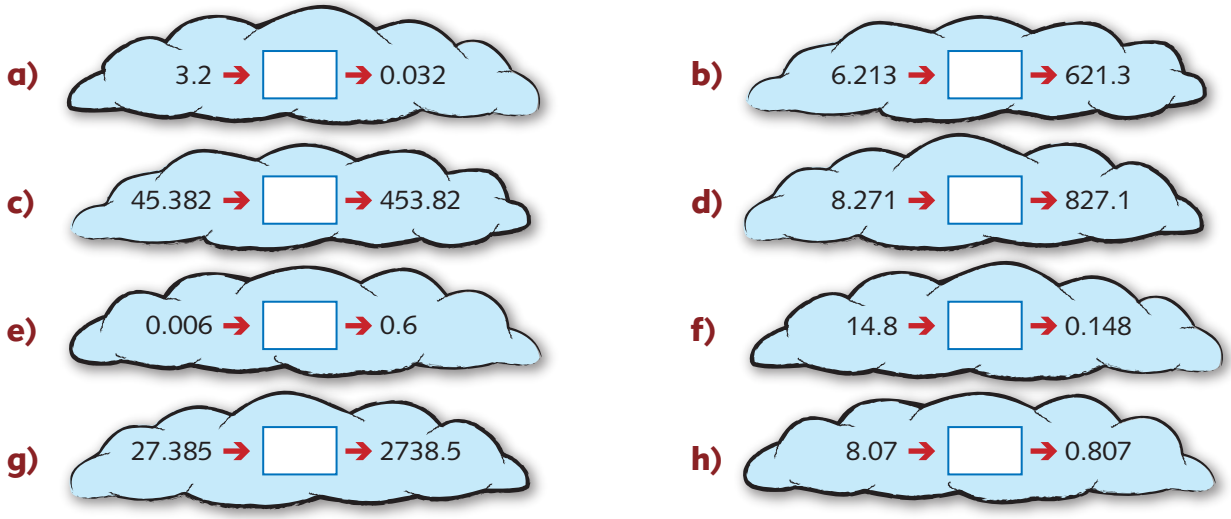
1 Answer these.

a) 0.413 × 10 =
b) 9.281 × 10 =
c) 5.116 × 10 =
d) 0.522 × 10 =
e) 1.017 × 10 =
f) 6.305 × 10 =
g) 1.602 × 100 =
h) 15.925 × 100 =
i) 34.007 × 100 =
j) 0.632 × 100 =
k) 1.052 × 100 =
l) 86.927 × 100 =

2 Answer these.

a) 14.6 ÷ 10 =
b) 81.7 ÷ 10 =
c) 4.35 ÷ 10 =
d) 0.6 ÷ 10 =
e) 4.31 ÷ 10 =
f) 8.25 ÷ 10 =
g) 3.4 ÷ 100 =
h) 18.2 ÷ 100 =
i) 7.5 ÷ 100 =
j) 34.6 ÷ 100 =
k) 1.8 ÷ 100 =
l) 0.4 ÷ 100 =

3 Copy and complete these. Use ×10, ×100, ÷10 or ÷100.



4 Answer these.

a) What number does 4.145 have to be multiplied by to get 414.5?

b) What number does 17.1 have to be divided by to get 0.171?

c) A number is multiplied by 10 to give 6.15. What is the number?

d) What number divided by 100 gives 0.125?

e) A number is divided by 100 to give 0.041. What is the number?

f) A number is multiplied by 100 to give 34.8. What is the number?

g) What number multiplied by 100 gives 7.8?

h) What number divided by 100 gives 0.399?

Try this

The 6 in 236.1 is two columns away from the 6 in 2.361. It is 100 times greater.

The 8 in 35.68 is two columns away from the 8 in 3568. It is 100 times smaller.

Answer these.

a) What would you multiply the 8 in 48.5 by, to give it the same value as the 8 in 485?

b) What would you multiply the 5 in 7.315 by, to give it the same value as the 5 in 73.15?

c) What would you divide the 6 in 467.5 by, to give it the same value as the 6 in 4.675?

d) How many times greater is the 1 in 21.75 than the 1 in 2.175?

e) How many times smaller is the 3 in 1.039 than the 3 in 103.9?

Comparing and ordering decimals

When you put decimals in order, compare each digit, starting with the digits with the largest place value. These are the digits on the **left** of the number.

Put these in order, starting with the smallest.

9.857 9.845 9.085 9.854

Compare the whole numbers, then the tenths, then the hundredths and finally the thousandths.

9.085 < 9.845 < 9.854 < 9.857

1 Copy the number lines.
Join the black numbers to the correct position on the number lines.

a) 4.13 4.2 4.26 4.19

b) 0.157 0.168 0.16 0.153

2 Write each set of numbers in order. Use the signs < or >

Start with the smallest number. ☐ < ☐ < ☐

a) 17.451 17.47 17.5

b) 28.93 28.927 20.845

c) 0.933 0.098 0.903

d) 7.444 7.058 7.94

Start with the largest number. ☐ > ☐ > ☐

e) 27.52 27.091 27.089

f) 14.67 14.649 14.269

g) 29.23 29.241 29.238

h) 4.009 4.109 40.1

3 Write each set of numbers in order. Start with the smallest number each time.

a) 11.085 11.516 11.805 11.85

b) 0.125 0.109 0.87 0.111

c) 7.268 7.6 7.29 7.608

d) 20.32 20.123 20.09 20.299

4 This chart shows the height and weight of a group of men.

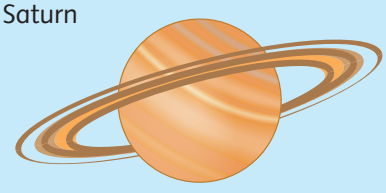
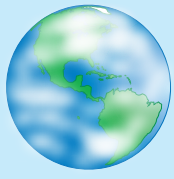
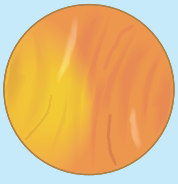
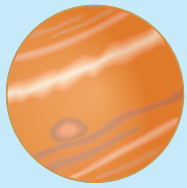
	Mike	Steve	Andy	Ian	Tom	John
Height (m)	1.62	1.65	1.79	1.7	1.82	1.71
Weight (kg)	80.29	79.85	87.375	70.618	87.125	74.362

a) Write the heights in order, starting with the tallest.

b) Write the weights in order, starting with the heaviest.

Try this

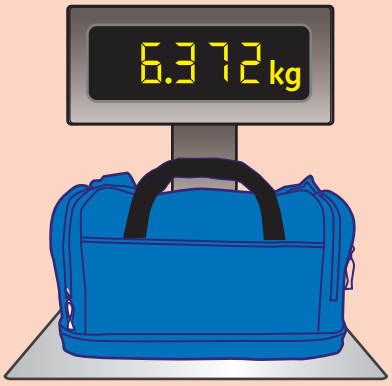
The masses of planets in the Solar System have been compared to the mass of Earth.
If we say that the mass of Earth is 1, then the masses of the planets are shown in the table.
Write these planets in order, starting with the greatest mass.

Planet	Mass (compared with Earth)	Planet	Mass (compared with Earth)
Uranus 	14.536	Neptune 	17.148
Saturn 	95.161	Earth 	1.000
Venus 	0.815	Jupiter 	317.828

The mass of Earth is approximately 73.5 billion tonnes.

Rounding decimals

Rounding decimals makes them easier to work with.
For example, this bag weighs 6.372 kilograms.



This measurement is very exact. Usually, you only need to know that it is about 6 kg, or if you want to be a little more accurate that it weighs about 6.4 kg.

Decimals are usually rounded to the nearest whole number or to the nearest tenth.

Rounding to the nearest whole number

- Look at the tenths digit.
- If it is 5 or more, round up to the next whole number.
- If it is less than 5, the units digit stays the same.

16.5 rounds up to 17
7.48 rounds down to 7

Rounding to the nearest tenth

- Look at the hundredths digit.
- If it is 5 or more, round up to the next tenth.
- If it is less than 5, the tenth digit stays the same.

13.77 rounds up to 13.8
4.639 rounds down to 4.6

1 Copy this number line.

Join each of these decimals to the nearest tenth on the number line.

2.38 2.07 2.41 2.75 2.66 2.83

2 Round each amount to the nearest whole unit.

a) 27.6 cm → ☐ cm

b) 5.92 l → ☐ l

c) $83.49 → $ ☐

d) 20.5 g → ☐ g

e) 11.08 km → ☐ km

f) 14.56 kg → ☐ kg

3 Round each amount to the nearest tenth of a unit.

a) \$7.07 → \$ ☐

b) 5.364 l → ☐ l

c) 15.51 m → ☐ m

d) 9.828 kg → ☐ kg

e) 42.339 km → ☐ km

f) \$15.54 → \$ ☐

4 Round each of these to the nearest whole number.

a) 14.063 → ☐

b) 9.602 → ☐

c) 23.009 → ☐

d) 18.518 → ☐

e) 27.905 → ☐

f) 54.485 → ☐

5 These calculator displays show amounts of money in dollars. Write them correctly using \$. Round them to the nearest cent if necessary.

a) 5.4

b) 18.4

c) 3.875

d) 9.147

e) 15.333

f) 108.951

Assessment

These are the wingspans and weights of some of the largest owls in the world.

Owl	Wingspan (cm)	Weight (kg)
Cape eagle owl	57.94	1.815
Eurasian eagle owl	74.81	4.187
Great horned owl	60.27	2.509
Pharaoh eagle owl	49.87	2.269
Snowy owl	70.06	2.945

a) Write the owls in order of wingspan, starting with the longest.

b) Write the owls in order of weight, starting with the lightest.

c) Round each wingspan to the nearest centimetre.

d) Round each weight to the nearest tenth of a kilogram.