

Year 7 - Place Value, Decimals

1. Adding and subtracting decimals

What is $13.4 + 24.8$?

Set up columns for tens, ones and tenths.

Line up 13.4 and 24.8 in columns.

Now add as usual.

T	O	.	$\frac{1}{10}$
1	3	.	4
2	4	.	8
3	8	.	2
			1

What is $8.5 - 4.63$?

Set the subtraction out in columns. Make sure both values have the same number of decimal places by filing in the zero.

Now subtract as usual.

O	.	$\frac{1}{10}$	$\frac{1}{100}$
7	8	.	10
4	.	6	3
3	.	8	7

4. Rounding

when the next digit is 1, 2, 3 or 4 we round **down**.

When the next digit is 5, 6, 7, 8, 9 we round **up**.

$\pounds 26.57$ to the nearest pound is **$\pounds 27$**

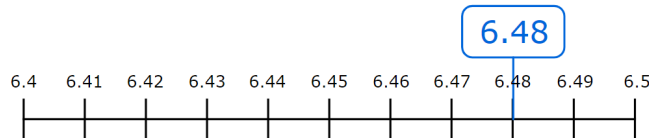
$\pounds 26.57$ to the nearest ten pounds is **$\pounds 30$**

$\pounds 26.57$ to the nearest ten pence is **$\pounds 26.60$**

5. Rounding to decimal places

Round 6.48 to 1 decimal place.

It lies between 6.4 and 6.5 on the number line.



It is closer to 6.5. So, 6.48 is **6.5 to 1 d.p.**

2. Multiplying decimals

How do you work out 0.5×0.8 ?

We know that $5 \times 8 = 40$

But this is not the final answer!

Here, we multiplied both decimals by 10 to make them into whole numbers. Now we have to undo **both** of these actions to find the final answer.

So we must divide 40 by 10 **twice**.

$$40 \div 10 = 4, \quad 4 \div 10 = 0.4$$

So, **$0.5 \times 0.8 = 0.4$**

3. Dividing decimals

How do you work out $1.21 \div 2.2$?

We could write the division as a fraction.

$$1.21 \div 2.2 = \frac{1.21}{2.2}$$

Multiply the top and bottom by 100.

$$\frac{1.21}{2.2} = \frac{121}{220}$$

$$\frac{121}{220} = \frac{11}{20}$$

$$\frac{11}{20} = \frac{11}{20}$$

$$\frac{11}{20} = \frac{11}{20}$$

$$\frac{11}{20} = \frac{1.1}{2}$$

$$\frac{1.1}{2} = \frac{1.1}{2}$$

$$\frac{1.1}{2} = \frac{1.1}{2}$$

$$= 1.1 \div 2 = 0.55$$

We can simplify the fraction until we reach a calculation we can do mentally.

Look for common factors of 121 and 220

$$11 \times 11 = 121 \text{ and } 11 \times 20 = 220$$

We could divide top and bottom by 10.

Now we have just have to divide by 2.

6. Rounding to significant figures

A. Large numbers

A multi-millionaire has savings of

$\pounds 6,725,000$

A newspaper wants to do an article on the woman.

They don't have enough space in the headline so they want to use an **approximate** amount instead.

What figure would they use?

What is the most **significant** figure in this amount?

Which digit tells us the most about the size of the number?



$\pounds 6,725,000$

Her savings are closer to **$\pounds 7,000,000$**

$\pounds 7,000,000$ (1 s.f.)

We say that $\pounds 6,725,000$ rounded to **1 significant figure** is $\pounds 7,000,000$.

Significant figures can be abbreviated to s.f. or sig. fig.

B. Numbers less than 1

Round this number to 4 significant figures.

0.00024357

Leading zeros (zeros at the beginning of a number) do not count as being significant. The first significant figure always has to be a non-zero digit.

2 is the first significant figure.

Place the arrow over the 4th most significant figure.

0.00024357

Is this number closer to 0.0002435 or 0.0002436?

0.0002436 (4.s.f.)