

YR5 Knowledge Organiser - Decimals

Key Concepts

- Read, write, order and compare numbers with up to three decimal places
- Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- Read and write decimal numbers as fractions
- Round decimals with two decimal places to the nearest whole number and to one decimal place
- Solve problems involving number up to three decimal places, including those which require knowing decimal equivalents of half, quarters, fifths, tenths and twenty-fifths
- Add and subtract decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1 (for example, $0.83 + 0.17 = 1$)

Key Vocabulary

- decimal
- fraction
- numerator / denominator
- tenths / hundredths / thousandths
- round
- equivalent



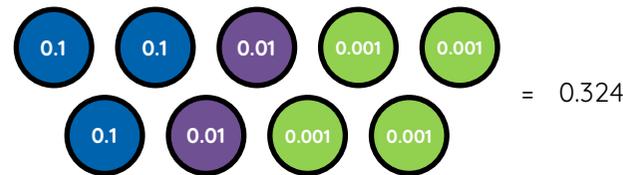
Thousandths

Thousandths are one hundred times smaller than tenths, and ten times smaller than hundredths. On a place value chart, you can find them to the right of the hundredths column in the third decimal place.

1s	0.1s	0.01s	0.001s
0	0	0	1

Decimals to Three Decimal Places

We can use our understanding of thousandths to represent, read and write numbers with up to three decimal places.



“The number zero point three two four has 0 ones, 3 tenths, 2 hundredths and 4 thousandths.”

Compare Decimals

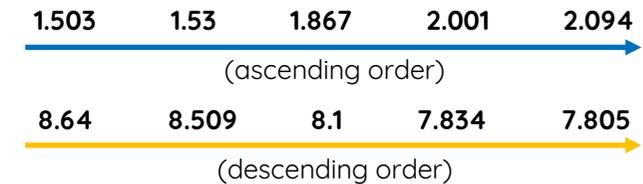
We can now apply our understanding of place value to compare decimals with up to three

decimal places.



Order Decimals

Once we can compare decimals, we can place them in ascending and descending order.



Rounding Decimals

We can round decimals (with up to 2 decimal places) to the nearest whole number by looking at the value of the tenths.

If there are 5 or more tenths, we round to the next whole number.



If there are 4 or fewer tenths, we round to the previous whole number.



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We can round decimals to one decimal place by looking at the value of the hundredths.

If there are 5 or more hundredths, we round to the next tenth.

$$4.18 \longrightarrow 4.2$$

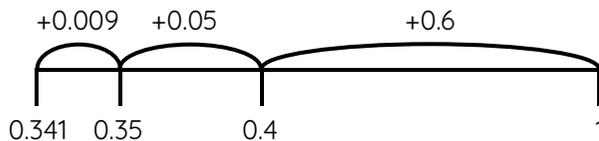
$$4.13 \longrightarrow 4.1$$

If there are 4 or less hundredths, we round to the previous tenth.

Complements to 1

We can link our understanding of number bonds to 10, 100 and 1,000 to help us find complements to 1, using decimals with up to three decimal places.

Number lines are a useful tool when finding complements to 1.



$$\begin{aligned} & \text{"0.341} + 0.009 = 0.35, 0.35 + 0.05 \\ & = 0.4 \text{ and } 0.4 + 0.6 = 1 \end{aligned}$$

Therefore, $0.341 + 0.659 = 1$ "



Adding and Subtracting Decimals

When adding and subtracting decimals, we must consider the place value of each digit.

The use of place value grids or the column method can help us to ensure the calculation is accurate.

	5	•	7	9	1
+	2	•	6	4	
	8	•	4	3	1

1 1

	9	•	7 8	10	3
-	6	•	2	6	
	3	•	5	4	3

Equivalent Decimals and Fractions

We use our place value knowledge to convert fractions with denominators of 10, 100 or 1,000 to decimals.

$$\frac{7}{100} = 0.07$$

$$\frac{49}{1000} = 0.049$$

In Year 4, we learn decimal equivalents of half and quarters. We can now build on this to find decimal equivalents of fifths and twenty-fifths.

$$\frac{1}{5} = \frac{2}{10} = 0.2$$

$$\frac{1}{25} = \frac{4}{100} = 0.04$$

Solving Problems

We can now apply our knowledge of decimals with up to three decimal places to solve problems.



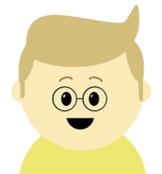
"On Saturday, I walked 5.248km and Jane walked 4.9km. On Sunday, I walked 4.76km and Jane walked 5.809km. Who walked the furthest?"

$$\text{Asha: } 5.248\text{km} + 4.76\text{km} = 10.008\text{km}$$

$$\text{Jane: } 4.9\text{km} + 5.809\text{km} = 10.709\text{km}$$

Jane walked the furthest.

"I had one litre of orange juice. I drank two-fifths on Monday and twelve twenty-fifths on Tuesday. How much juice do I have left?"



$$\frac{2}{5} = \frac{4}{10} = 0.4$$

$$\frac{12}{25} = \frac{48}{100} = 0.48$$

$$1\text{l} - 0.4\text{l} - 0.48\text{l} = 0.12\text{l}$$

Alfie has 0.12 litres of orange juice left.

