



Revision

Three Decimal Places



5/5/21

LO: To add and subtract decimal numbers

Whiteboards

Three Decimal Places

Diving



What are the values of the underlined digits in the following numbers?

45.173

8.280

20.63

101.003



What are the values of the underlined digits in the following numbers?

45.173

8.280

20.63

101.003

one
tenth

eight
hundredths

six
tenths

three
thousandths

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	6	4
				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	
		$\times 10$	0	8		
		2		0	8	

Thousands	Hundreds	Tens	Ones	tenths	hundredths	thousandths
		4	3	5		
	$\times 100$	5	0			
4	3			5		

Thousands	Hundreds	Tens	Ones	tenths	hundredths	thousandths
			1	3	5	1
	$\times 1000$	5	1			
1	3			3	5	1

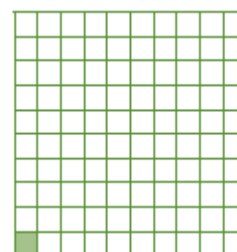
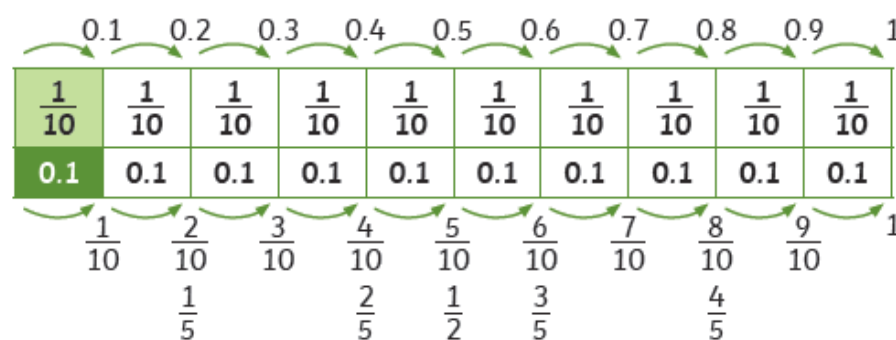
Multiplying Decimals by Integers

	3	4	5
$\times$			3
1	0	3	5
	1	1	

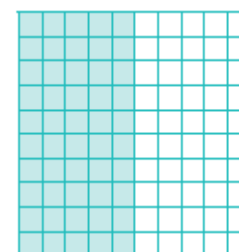
$$3.21 \times 3 = 9.63$$

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

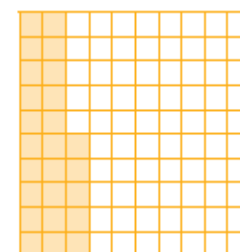
Decimal Numbers as Fractions



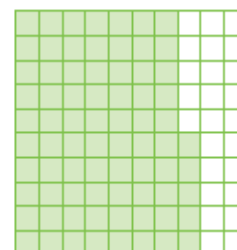
$$\frac{1}{100} = 0.01$$



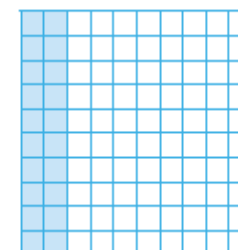
$$\frac{50}{100} = \frac{1}{2} = 0.5$$



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



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



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

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

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

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



Write the decimal number shown on this place value chart.

Tens	Ones	tenths	hundredths	thousandths
● ●	●	● ● ● ● ●	●	● ● ●

21.513

Round to nearest tenth!

Round to nearest whole no!

6

Write these numbers in order of size, starting with the **smallest**.

1.9

0.96

1.253

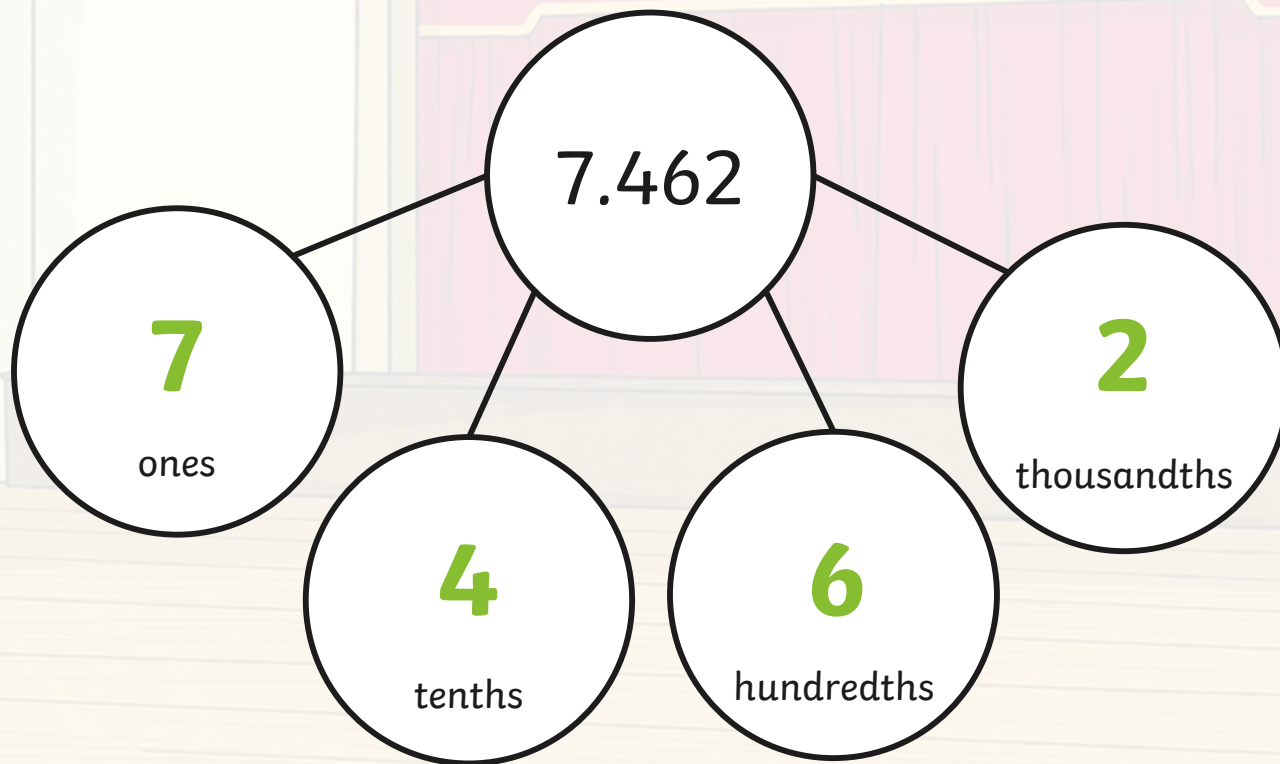
0.328

smallest

1 mark



Complete the decimal part-whole model.

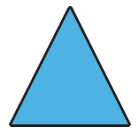


Can you find different ways to do this?



Toby thinks he has correctly matched the decimal numbers to the shapes using the clues given.

Is Toby correct? Explain your reasoning.

Decimal Numbers		Shapes
3.902	→	
2.092	↘	
9.390	↗	
0.392	↗	

Clues:

- The triangle has two thousandths. The star has the same number of ones as thousands.
- The lightning bolt has less ones than tenths.
- The heart has 90 thousandths.

Compare Decimals

RECAP...

Use $<$, $>$ or $=$ to compare the decimal numbers:

22.17	$<$	22.63
Four ones, six-tenths and two-hundredths	$=$	4.62
8.7	$>$	0.9

Compare Decimals

Write a decimal number to make each statement correct.

For the first and the last statement, there are many answers.

2.9	$>$	2.08
three tens, eight ones and four-hundredths	$=$	38.04
14.1	$<$	18.6

Adding Decimals with a Different Number of Decimal Places

Complete these calculations.

The notebook page displays two decimal addition problems using a grid method. The columns are labeled: Ones, tenths, hundredths, and thousandths.

Problem 1:

	Ones	tenths	hundredths	thousandths
	2	3	6	
+	4	2	8	3
	6	6	4	3
		1		

Problem 2:

	3	2	5	4
+	4	9	3	
	8	1	8	4
	1			



Fern and John are adding two decimal numbers. They both have different answers. Who is correct? What mistake has the other person made?

Fern

	3	.	2	5	
+	4	.	4	7	3
	7	.	7	2	3
			1		

John

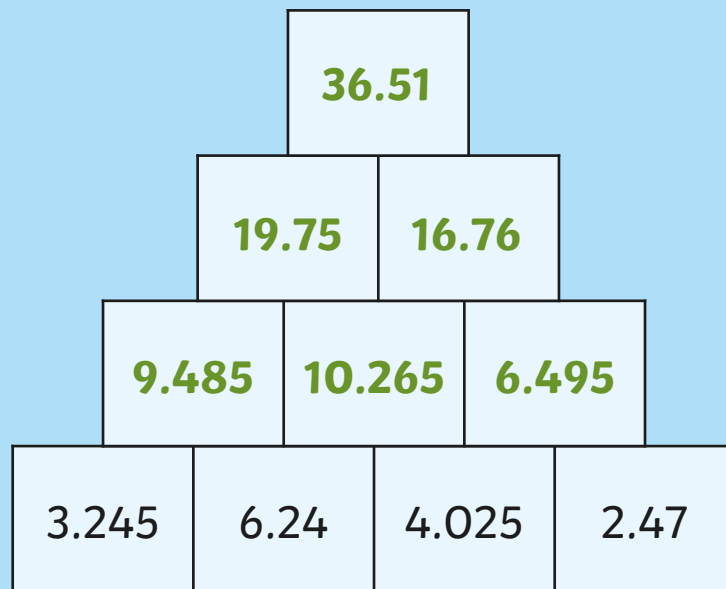
	3	.	2	5	
+	4	.	4	7	3
	7	.	6	2	3

Fern is correct. John has made an error. He has not recorded his regroup digit in the tenths column.

Adding Decimals with a Different Number of Decimal Places



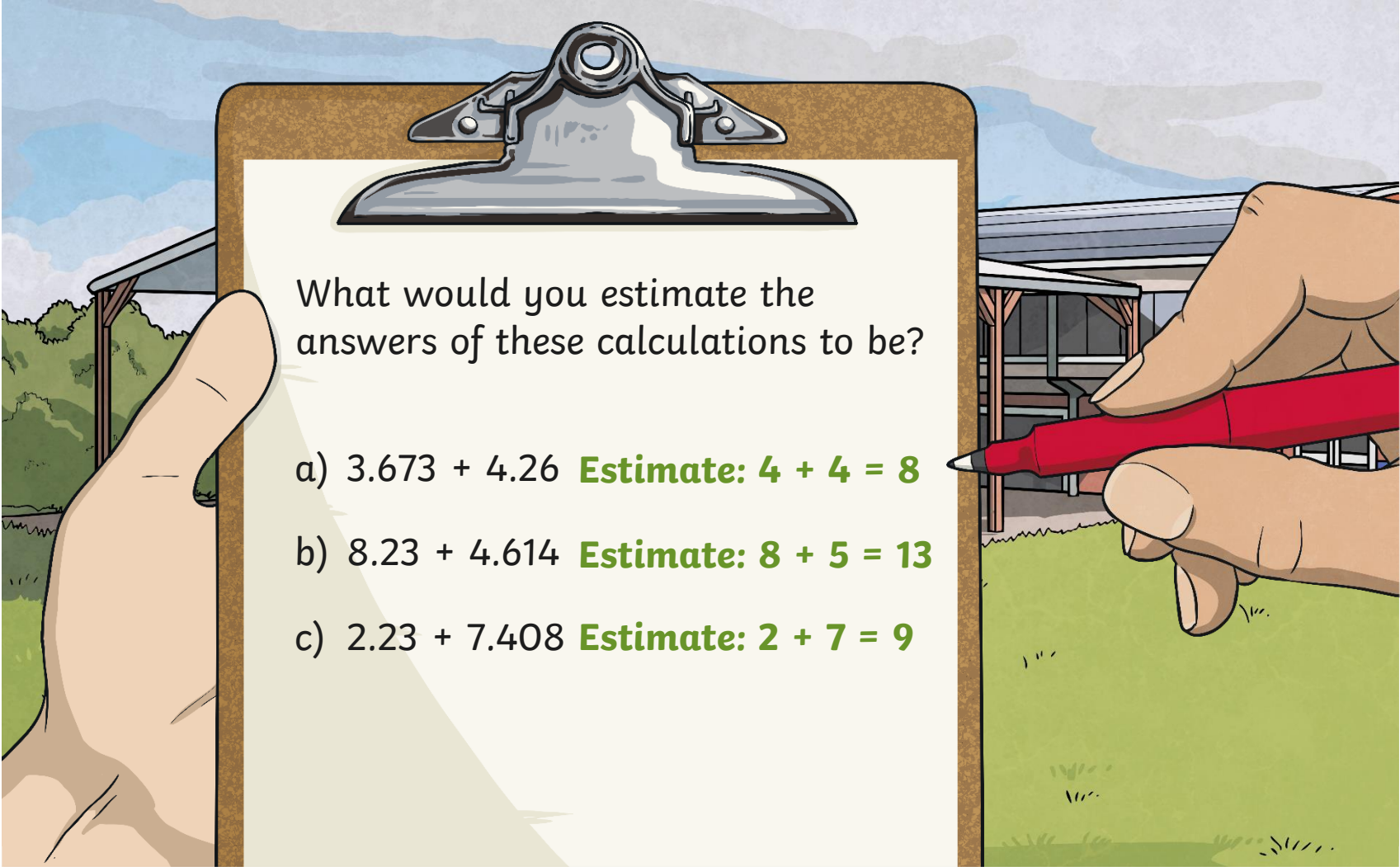
Complete this addition pyramid.
The block above each pair of blocks
is the total of the numbers below it.



Hexagons/ Octagons



Adding Decimals with a Different Number of Decimal Places



What would you estimate the answers of these calculations to be?

a) $3.673 + 4.26$ **Estimate: $4 + 4 = 8$**

b) $8.23 + 4.614$ **Estimate: $8 + 5 = 13$**

c) $2.23 + 7.408$ **Estimate: $2 + 7 = 9$**



1) Complete these calculations.

Squares Triangles

	Ones	tenths	hundredths	thousandths
a)	2	3	4	
+	3	4	6	2

b)	4	3		
+	2	7	2	5

c) $3.142 + 4.68 =$ _____

d) $2.03 + 6.109 =$ _____

2) Looking at these calculations, use your estimating knowledge to identify which have the wrong answer without doing any written methods. Tick or cross to show which are correct and incorrect. What would you estimate the totals to be?

- ☐ a) $6.321 + 2.54 = 6.575$
- ☐ b) $4.37 + 1.756 = 6.126$
- ☐ c) $2.3 + 3.125 = 314.8$



1) Complete these calculations.

Squares Triangles

	Ones	tenths	hundredths	thousandths
a)	2	3	4	
+	3	4	6	2

b)	4	3		
+	2	7	2	5

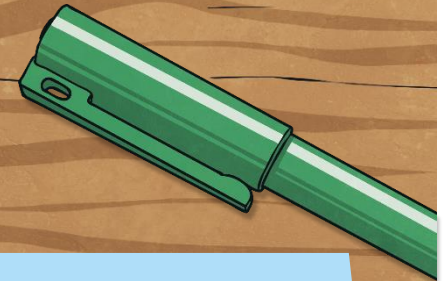
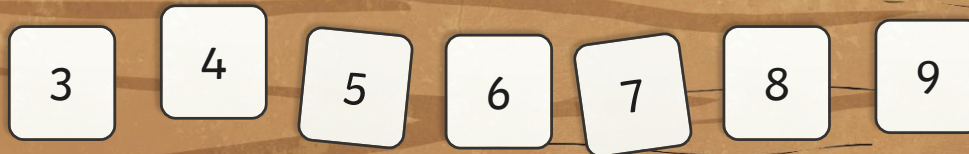
c) $3.142 + 4.68 =$ _____

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- ☐ a) $6.321 + 2.54 = 6.575$
- ☐ b) $4.37 + 1.756 = 6.126$
- ☐ c) $2.3 + 3.125 = 314.8$

Adding Decimals with a Different Number of Decimal Places



	?	.	?	?	
+	?	.	?	?	?

Many answers are possible, including:

$$3.57 + 4.689 = 8.259$$

$$3.86 + 4.579 = 8.439$$

$$4.68 + 3.579 = 8.259$$

$$4.89 + 3.567 = 8.457$$

Use these digit cards to complete this calculation. The answer is between 8 and 9. You can only use each digit card once. Find 4 possible solutions.

Extension

Daily Maths Meeting



Weds

**Subtracting
decimals**

Subtracting Decimals with a Different Number of Decimal Places

Complete these calculations:

a)

	O	t	h	th
	³ 4	¹² 3	¹ 6	2
-	1	7	8	0
	2	5	8	2

c) $4.7 - 2.34 = 2.36$

b)

	O	t	h	th
	⁴ 5	¹ 3	⁵ 6	¹ 0
-	2	4	1	5
	2	9	4	5

d) $3.678 - 1.9 = 1.778$

RECAP!

Subtracting Decimals with a Different Number of Decimal Places

Diving



Complete these calculations:

a)

	O	t	h	th
	³ 4	¹² 3	¹ 6	2
-	1	7	8	0
	2	5	8	2

c) $4.7 - 2.34 = \mathbf{2.36}$

b)

	O	t	h	th
	⁴ 5	¹ 3	⁵ 6	¹ 0
-	2	4	1	5
	2	9	4	5

d) $3.678 - 1.9 = \mathbf{1.778}$

1) Answer these calculations.



a)

	O	t	h	th
	3	6	2	5
-	1	8	1	

b)

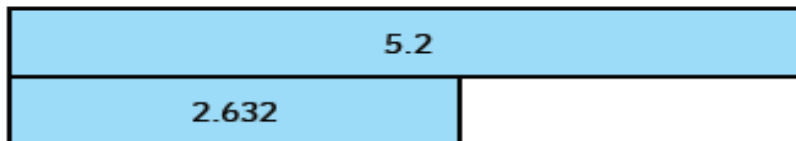
	O	t	h	th
	4	5	6	
-	2	6	2	4

c) $2.9 - 1.38 =$

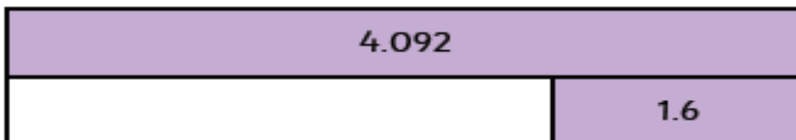
d) $5.03 - 1.8 =$

2) Complete the bar models.

a)



b)



Recap- Triangles and Squares

2) Spot the mistakes.

Which of these calculations are incorrect?

Explain the mistake then work out the correct answer.

a)

	4	3	8	2
-		1	6	3
	4	2	1	9

b)

	3	6	4	
-	1	3	7	2
	2	2	7	2

c)

	5	6		
-	2	3	8	
	3	2	2	

3) Find the missing digits.

	4		8	
-	1	4	6	
		9		7

		5	2	1
-	1			
	2	0	6	

Hexagon and Octagons