Adding and subtracting decimals 2

Discover

1 a) How much orange paint can Olivia and Luis make?

b) How much more orange paint do they need to make?

Good Morning Year 5 and welcome to the second lesson on adding and subtracting decimals.

Just like normal, have a go at the questions for a couple of minutes and see what you would do before we look at how to work them out on the next slide.

Share

a) Olivia and Luis can add 0·23 l of yellow paint to 0·45 l of red paint.

I used column addition, just like when adding whole numbers.

O	•	Tth	Hth
	•	2	3
	•	4	5

	O	·	Tth	Hth
	0	·	2	3
+	0	·	4	5
	0	·	6	8

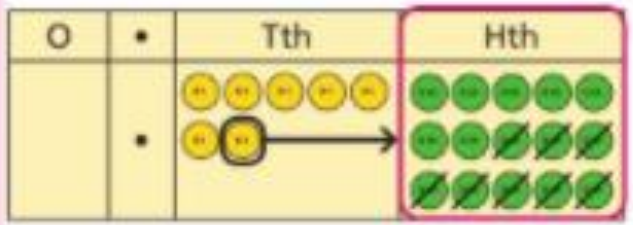
0·23 + 0·45 = 0·68 Olivia and Luis can make 0·68 l of orange paint.

So we are going to use column addition to work out how much orange paint is made. To do this we need to set out our columns like it shows us on the picture. You need to make sure that numbers are lined up correctly! Then we know that there was 0.23 l of yellow paint and 0.45 l of red paint.

We will first start by adding the numbers in the Hth column 3 + 5 = 8 Then the Tth column 2 + 4 = 6 Then we will keep the decimal place in the correct column and finally add the numbers in the ones column 0 + 0 = 0.

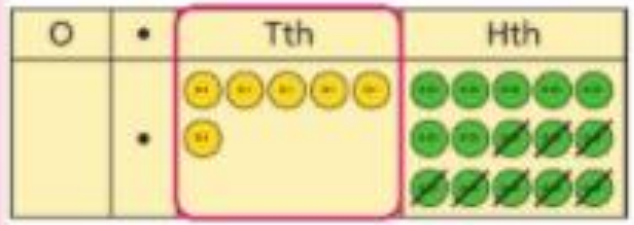
This means that the answer is 0.68

b) A subtraction will show how much more orange paint they need to make.



O	·	Tth	Hth
0	·	$^{6}\not{7}$	$^{1}5$
− 0	·	6	8
	·		7

First, exchange 1 tenth for 10 hundredths. Then, subtract the hundredths.



O	·	Tth	Hth
0	·	$^{6}\not{7}$	$^{1}5$
− 0	·	6	8
0	·	0	7

Subtract the tenths.

0·75 − 0·68 = 0·07 l

O	·	Tth	Hth
0	·	$^{6}\not{7}$	$^{1}5$
− 0	·	6	8
0	·	0	7

Olivia and Luis need to make 0·07 l more orange paint.

Subtraction will show how much more orange paint they need to make. So we need to do 0.75 (the amount of paint they need) subtract 0.68 (the amount of paint they have made).

Again we will use the column method. Which is shown in the picture. Make sure you set it out correctly!

We start in the Hth column and do 5 – 8 (which we can not do) so we need to exchange 1 tenth for 10 hundredths. We now have 6 in the Tth column and 15 hundredths. 15 – 8 = 7

Next step is to subtract the tenths. We now have 6 Tth – 6 = 0

Finally in the ones column we have 0 – 0 which is 0 so our answer is 0.07

Think together

1 a) Look at the containers. How much orange paint can be made?

O	•	Tth	Hth
	•		
	•		

	O	·	Tth	Hth
	0	·	4	1
+	0	·	4	2
		·		

☐ + ☐ = ☐ l

☐ litres of orange paint can be made.

Red + Yellow makes orange.
So 0.42 + 0.41 = orange

I will use column method to work this out. I will start with the Hth column . 1+ 2 = 3. Then the Tth column 4 + 4 + 8 and finally after making sure my decimal point is in the correct place I will add the ones column 0 + 0 = 0.

So my answer will be 0.83

b) Bronwyn adds the water and the blackcurrant to make blackcurrant squash.

How much squash can be made?

O	•	Tth	Hth
	•		
	•		

O · Tth Hth

\+ _____

_____

□ + □ = □ l

□ litres of squash can be made.

I need to add 0.29 and 0.22. I will use the column method again to help me work this out.

Make sure you have lined up the digits correctly in the correct place value column!

I will start by looking at the Hth column 9 + 2 = 11. I know I can not write 11 in the Hth column so will exchange. I will write the 1 in the Hth column and a small one to show my exchanging in the Tth column.

Now I will add my Tth column up. 2 + 2 = 4 and then I need to add the 1 that I put there earlier for the exchange. 4 + 1 = 5. This means there is a 5 in the Tth column.

Finally I will keep the decimal point in the correct place and add up the one column. 0 + 0 = 0.

This means my answer = 0.51

2 a) Jamilla has two tins of soup. How much soup does she have in total?

Jamilla has ☐ l of soup in total.

b) She needs 1 litre of soup for all her friends for lunch. How much more does she need?

Jamilla needs ☐ l more soup.

2a) I will use column addition 0.39 + 0.52

O	.	Tth	Hth
0	.	3	9
0	.	5	2
0	.	9	1

1

I needed to exchange

0.39 + 0.52 = 0.91l of soup in total

2b) I will use the column method. I know I need to subtract 0.91 from 1 to get the answer. I will make sure I set it out correctly. And to make it easier I will put zeros in to keep the place value.

O	.	9 Tth	Hth
~~1~~	.	~~1~~ 0	1 0
0	.	9	1
0	.	0	9

Starting in the Hth column 0-1 you can't do. So I need to exchange. I will exchange from the Ones column into the Tths column and then from the Tth column into the Hth column. The 1 in the ones column becomes a 0 and there are now 10 in the Tth column. I cross this out to become a 9 and exchange so I now have 10 in the Hth column. 10 – 1 = 9 in the Hth column. 9 – 9 = 0 in the Tth column and 0 – 0 = 0 in the ones column so the answer is 0.09

Adding and subtracting decimals 2

1 Mo adds different amounts of water and orange to make orange squash. Complete the additions.

a) 0·36 l + 0·22 l = ☐ l

O	•	Tth	Hth
	•		
	•		

O	·	Tth	Hth
0	·	3	6
+ 0	·	2	2
	·		

b) 0·25 l + 0·47 l = ☐ l

O	•	Tth	Hth
	•		
	•		

O	·	Tth	Hth
0	·	2	5
+ 0	·	4	7
	·		

c) 0·55 + 0·31 = ☐

O	·	Tth	Hth
0	·	5	5
+ 0	·	3	1
	·		

d) 0·38 + 0·38 = ☐

O	·	Tth	Hth
	·		
+	·		
	·		

Now it is your turn to have a go. Please write down the question and your working out in paper so you can bring it in to school to show Miss Bosworth your work.

Make sure you set up the digits in the correct columns when you set up your calculations.

2 Kate works out 0·05 + 0·12 as a column addition. Explain Kate's mistake.

	O	·	Tth	Hth
	0	·	5	
+	0	·	1	2
	0	·	6	2

_____

_____

_____

1

3 A running race is 0·65 km long. Lee runs 0·34 km. How far is left to run?

0·65 km – 0·34 km = ☐ km

O	•	Tth	Hth
	•		

O	·	Tth	Hth
0	·	6	5
– 0	·	3	4
	·		

Don't forget to check the symbol. This time you are being asked to use subtraction.

4 Complete the subtractions.

a) 0·92 – 0·58 = ☐

O	·	Tth	Hth
0	·	9	2
– 0	·	5	8
	·		

c) 0·71 – 0·24 = ☐

O	·	Tth	Hth
0	·	7	1
– 0	·	2	4
	·		

Remember what you have to do if you need to exchange. Make sure you set it out clearly so you do not get confused.

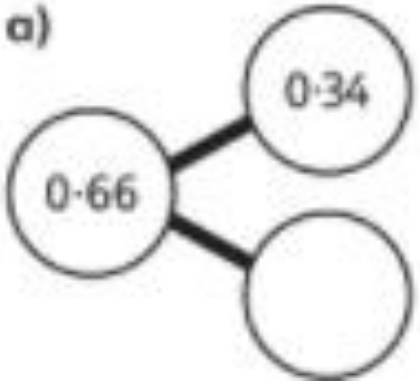
b) 0·49 - 0·19 = ☐

O	·	Tth	Hth
0	·	4	9
– 0	·	1	9
	·		

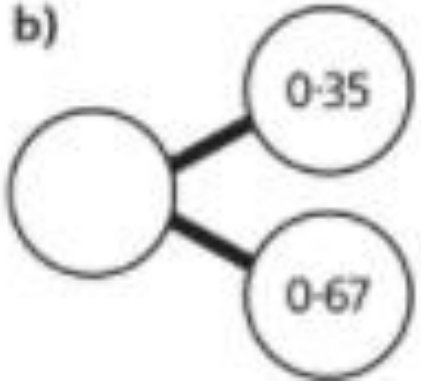
d) 0·60 – 0·45 = ☐

5 Complete the missing numbers in these models.

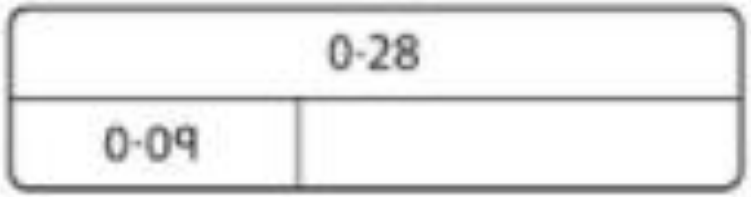
a)



b)

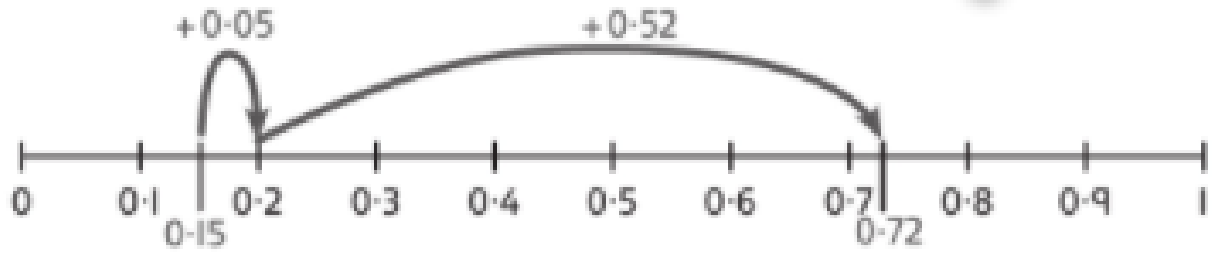


c)



So remember 5a and b are part whole models so look what the whole is and work out what the other part is by doing a subtraction. To work out the whole you need to add the parts together. C is a bar model and the two parts at the bottom make the answer at the top. To work out the missing part you need to use subtraction.

6 Ambika is using a number line to work out a calculation.



What two possible calculations might Ambika be working out?

_____

_____

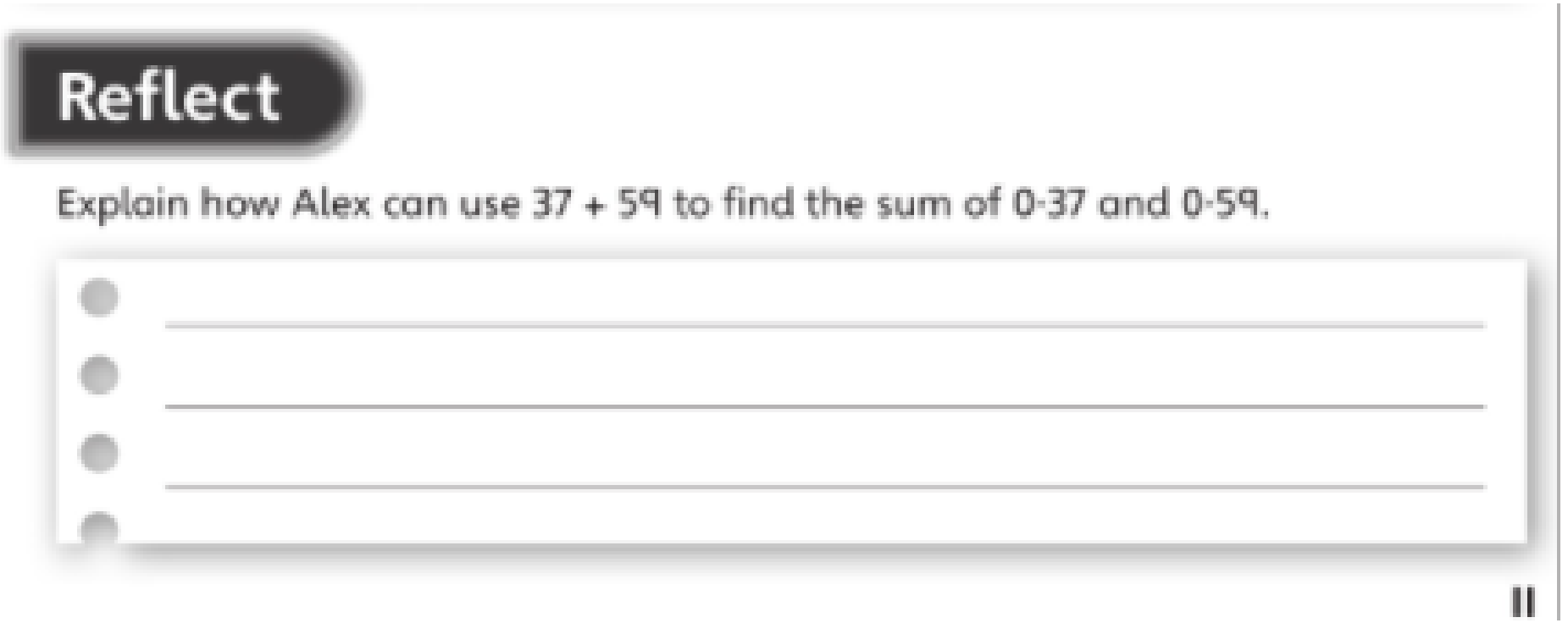
7 Use four different digits from 1, 2, 3, 4, 5, 6, 7, 8, 9 to:

a) Make the greatest total you can, less than 1.

b) Make the greatest difference you can, less than 1.

$$\begin{array}{r} 0\cdot\square \\ +\ 0\cdot\square \\ \hline 0\cdot\square \end{array} \qquad \begin{array}{r} 0\cdot\square \\ -\ 0\cdot\square \\ \hline 0\cdot\square \end{array}$$

This is the challenge slide so do not worry if you can not do this. Please go on to do the reflect like we would in class. If you want to challenge yourself then have a go at this slide.



Well done year 5 in completing another maths lesson online. Don’t forget to put your name on your sheets and bring them into class for Miss Bosworth to see al your hard work. She can not wait to see you all again and hear what you have been getting up to.