

Lesson 74

SUBTRACTION USING SUMSTIX

EXAMPLE

$$56 - 29$$

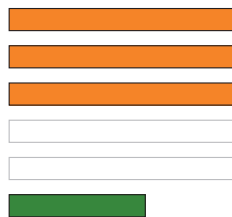


This problem will be easier if you think of the 29 as if it is in expanded form: $29 = 20 + 9$

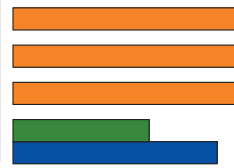
Step 1: Build the first number.



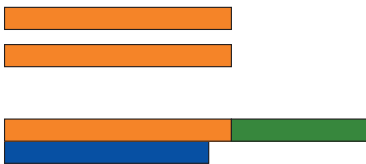
Step 2: Take away the 20.



Step 3: Now find a 9.



Step 4: Take the nine away.



I can't take nine from six so I need to 'borrow' a ten. Now I just need to find a stick to fill in this gap.



Step 5: The final answer.



$$56 - 29 = \underline{27}$$

LESSON PRACTICE

Use Sumstix to solve the subtractions then use the clues to solve the riddle.

$75 - 69 = \underline{\quad\quad} \text{ (A)} \quad 31 - 13 = \underline{\quad\quad} \text{ (E)} \quad 84 - 77 = \underline{\quad\quad} \text{ (R)}$

$54 - 37 = \underline{\quad\quad} \text{ (B)} \quad 64 - 28 = \underline{\quad\quad} \text{ (L)} \quad 26 - 18 = \underline{\quad\quad} \text{ (U)}$

$97 - 58 = \underline{\quad\quad} \text{ (D)} \quad 52 - 36 = \underline{\quad\quad} \text{ (O)} \quad 40 - 28 = \underline{\quad\quad} \text{ (Z)}$

RIDDLE

What do you call a sleeping bull?

6 17 8 36 36 39 16 12 18 7

Lesson 75

SUBTRACTION USING A PLACE VALUE MAT

Last lesson we saw that, when we subtract two digit numbers, we sometimes have to "borrow" a ten. When we do this on paper, there are two different ways to perform the calculation. One is called the "borrow and pay back" method and the other is called the "regrouping" method.

EXAMPLE 1: BORROW AND PAYBACK

$$52 - 38$$

Step 1: Make the problem up on the place value mat

h	t	o
	5	2
-	3	8

Step 2: Borrow and payback.

h	t	o
	5	12
-	3	8

We 'pay back' the ten here.

We can't subtract eight from two, so we 'borrow' ten.

Step 3: Subtract the one's column.

h	t	o
	5	12
-	3	8
	1	4

Ten plus 2 is 12.

Twelve take away eight is four.

Step 4: Subtract the ten's column.

h	t	o
	5	12
-	3	8
	1	4

1 ten plus 3 tens is 4 tens.

Five take away four is one. (5 tens take away 4 tens is 1 ten.)

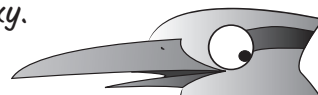
I prefer the "borrow and payback" method because it always works just as described in the example above, it is simple to learn and perform and, therefore, is less prone to errors. It is also the way that all computers do subtraction internally. Some people prefer the regrouping method so I will describe it here.

In a later level, I will explain why and how both of these methods work.

In this method, step 4 is a tiny bit easier, but step 2 can get quite tricky.

EXAMPLE 2: REGROUPING

$$52 - 38$$



Step 1: Make the problem up on the place value mat

h	t	o
	5	2
-	3	8

Step 2: Regroup.

h	t	o
	4	12
	3	8

52 = 4 tens plus 12 ones.

We can't subtract eight from two, so we regroup the 52.

Step 3: Subtract the one's column.

h	t	o
	4	12
-	3	8
		4

Twelve take away eight is four.



Step 4: Subtract the ten's column.

h	t	o
	4	12
-	3	8
	1	4

Four take away three is one.



LESSON PRACTICE

Use your place value mat and digit cards to solve the following subtractions. You may use either of the methods described in this lesson.

After you're done, use the letter clues to solve the riddle.

$63 - 56 = \underline{\quad\quad} \text{(A)} \quad 41 - 16 = \underline{\quad\quad} \text{(H)} \quad 32 - 28 = \underline{\quad\quad} \text{(S)}$

$65 - 46 = \underline{\quad\quad} \text{(B)} \quad 73 - 67 = \underline{\quad\quad} \text{(K)} \quad 62 - 15 = \underline{\quad\quad} \text{(T)}$

$85 - 48 = \underline{\quad\quad} \text{(C)} \quad 81 - 73 = \underline{\quad\quad} \text{(N)} \quad 55 - 29 = \underline{\quad\quad} \text{(U)}$

$74 - 57 = \underline{\quad\quad} \text{(D)} \quad 46 - 18 = \underline{\quad\quad} \text{(O)} \quad 83 - 45 = \underline{\quad\quad} \text{(W)}$

$73 - 28 = \underline{\quad\quad} \text{(E)} \quad 61 - 25 = \underline{\quad\quad} \text{(R)} \quad 53 - 39 = \underline{\quad\quad} \text{(Y)}$

RIDDLE

Why do bees hum?



$\underline{19} \quad \underline{45} \quad \underline{37} \quad \underline{7} \quad \underline{26} \quad \underline{4} \quad \underline{45}$

$\underline{47} \quad \underline{25} \quad \underline{45} \quad \underline{14} \quad \underline{17} \quad \underline{28} \quad \underline{8} \quad \underline{47}$

$\underline{6} \quad \underline{8} \quad \underline{28} \quad \underline{38} \quad \underline{47} \quad \underline{25} \quad \underline{45}$

$\underline{38} \quad \underline{28} \quad \underline{36} \quad \underline{17} \quad \underline{4} \quad !$



Lesson 76

SUBTRACTION USING A PLACE VALUE CHART

EXAMPLE

$$88 - 69$$

Using borrow and payback.

h	t	o
	8	8
-	6	9

h	t	o
	8	8
-	6	9

Borrow and payback.

h	t	o
	8	8
-	6	9
		9

$18 - 9 = 9$

h	t	o
	8	8
-	6	9
	1	9

$8 - 7 = 1$

Using regrouping.

h	t	o
	8	8
-	6	9

h	t	o
	8 18	
-	6	9

Regroup.

h	t	o
	7 8	18
-	6	9
		9

$18 - 9 = 9$

h	t	o
	7 8	18
-	6	9
	1	9

$7 - 6 = 1$

LESSON PRACTICE

Use your favourite method to solve the subtractions:

$73 - 19$

h	t	o
-		

$94 - 69$

h	t	o
-		

$72 - 26$

h	t	o
-		

$83 - 75$

h	t	o
-		

$61 - 17$

h	t	o
-		

$23 - 18$

h	t	o
-		

$82 - 38$

h	t	o
-		

$94 - 77$

h	t	o
-		

Lesson 77

SUBTRACTION ON PAPER

Let's remove the place value chart and subtract on paper.

EXAMPLE

$$64 - 19$$

Borrow and payback:

	6	4
-	1	9
<hr/>		

	6	4
-	1	9
<hr/>		

	6	4
-	1	9
<hr/>		
		5

	6	4
-	1	9
<hr/>		
	4	5

Regrouping:

	6	4
-	1	9
<hr/>		

	⁵ 6	4
-	1	9
<hr/>		

	⁵ 6	4
-	1	9
<hr/>		
		5

	⁵ 6	4
-	1	9
<hr/>		
	4	5

LESSON PRACTICE

Use your favourite method to solve the subtractions then use the letter clues to solve the riddle.

$$55 - 48$$

-		
<hr/>		

E

$$92 - 86$$

-		
<hr/>		

L

$$91 - 42$$

-		
<hr/>		

K

$$95 - 59$$

-		
<hr/>		

S

RIDDLE

What vegetable are sailors afraid of?

$$\frac{6}{7} \frac{7}{49} \frac{36}{!}$$