



# MATHEMATICS



**N.S. Yr. 3 P.45**

**Begin to use pencil and paper  
methods of subtraction**

## Equipment

Paper, pencil, ruler

# MathSphere

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## Concepts

In year 3 children are encouraged to make jottings to help them with more difficult subtractions.

Three different approaches are suggested, each one reliant on previously learnt mental methods.

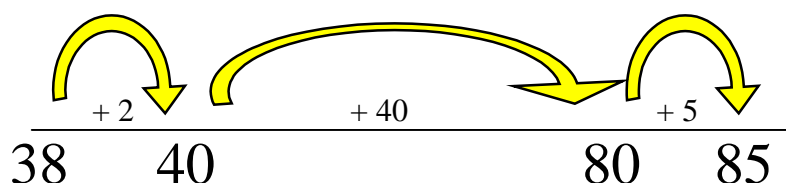
At first children need to practice the methods, even though they may be confident enough to find the answer without resorting to pencil and paper jottings.

### Method one:

This is often called complementary addition and is a favourite during activities such as giving change from a shop purchase. Subtraction is carried out by adding on, from the lower number, to the higher number.

This is essentially a mental method with notes as a reminder.

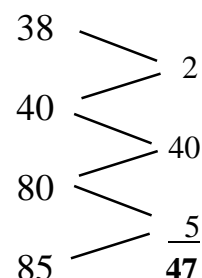
$$85 - 38$$



Count on 2 from 38 to make 40

Count on 40 from 40 to make 80

Count on 5 from 80 to make 85



Count on **47** altogether

Method two:

This is often called the compensation method. The number being subtracted is rounded up to the next whole ten and then subtracted from the larger number. An addition is then carried out to 'compensate' for the earlier rounding.

For example:

$$\begin{aligned} &46 - 28 \\ &= 46 - 30 + 2 \\ &= 16 + 2 \\ &= 18 \end{aligned}$$

Method three:

This method needs to be used as it is the stepping stone for moving away from mental methods to the traditional pencil and paper methods.

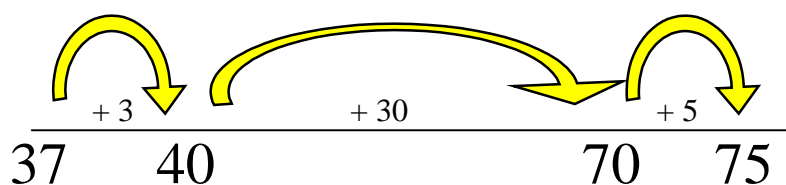
The number is 'decomposed' into tens and units, a ten may need to be 'borrowed' to make the sum possible.

$$\begin{array}{rclcl} 72 & = & 70 + 2 & = & 60 + 12 \\ - 35 & & \underline{30 + 5} & & \underline{30 + 5} \\ & & & & 30 + 7 = 37 \end{array}$$

Subtraction by counting up

Sometimes you can do all your subtraction sums by adding.  
Have a look at the jottings below and see if you can work the same way.

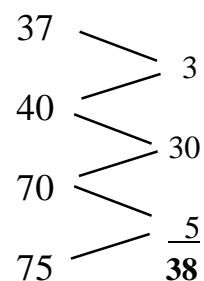
$$75 - 37$$



Count on 3 from 37 to make 40

Count on 30 from 40 to make 70

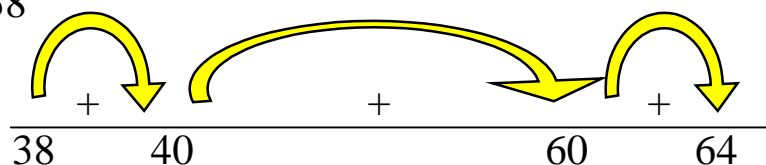
Count on 5 from 70 to make 75



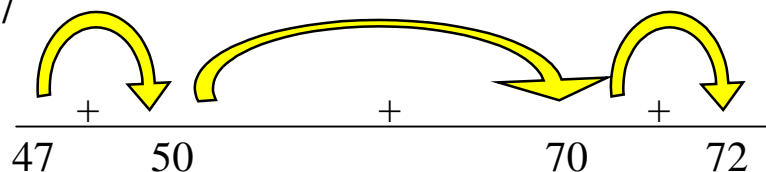
Count on 38 altogether

Try these:

$$64 - 38$$



$$72 - 47$$



Subtraction by counting up

Try doing these  
subtractions by adding on.  
Make jottings to help you.



Eg  $54 - 26$

$$26 \xrightarrow{+4} 30 \xrightarrow{+20} 50 \xrightarrow{+4} 54$$

28

Try these:

1.  $53 - 28 =$

Jottings

2.  $62 - 35 =$

Jottings

3.  $45 - 27 =$

Jottings

4.  $71 - 46 =$

Jottings

5.  $55 - 38 =$

Jottings

Subtraction by counting up

Make jottings to help you do these subtractions by adding on.



Eg  $63 - 27$

$$27 \xrightarrow{+3} 30 \xrightarrow{+30} 60 \xrightarrow{+3} 63 = \boxed{36}$$

Try these:

1.  $75 - 27 =$

Jottings

2.  $64 - 38 =$

Jottings

3.  $53 - 25 =$

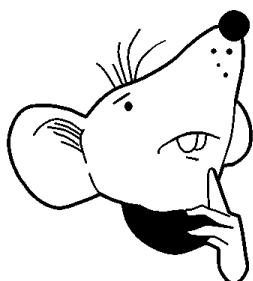
Jottings

4.  $74 - 48 =$

Jottings

5.  $62 - 37 =$

Jottings

Subtraction by counting up

I know another way of writing jottings for subtraction. Have a look at this!

Eg  $53 - 28$

28		
↓	+	2
30		
↓	+	20
50		
↓	+	3
53		
		<hr/>
		25

$$53 - 28 = 25$$

Try these, with jottings:

1.  $61 - 37 =$

37		
	+	
40		
	+	
60		
	+	
61		<hr/>

2.  $55 - 28 =$

28		
	+	
30		
	+	
50		
	+	
55		<hr/>

**Subtraction by counting up**

$$500 - 378$$

$$378 \xrightarrow{+2} 380 \xrightarrow{+20} 400 \xrightarrow{+100} 500 = 122$$

Try these by counting on. Make your own jottings.

1.  $400 - 265$

2.  $500 - 385$

3.  $600 - 283$

4.  $700 - 379$

5.  $800 - 416$

6.  $900 - 666$

7.  $500 - 328$

8.  $600 - 189$



**Subtraction by counting up**

$$400 - 267$$

$$267 \xrightarrow{+3} 270 \xrightarrow{+30} 300 \xrightarrow{+100} 400 = 133$$

Try these by counting on. Make your own jottings.

1.  $300 - 154$

2.  $400 - 276$

3.  $500 - 172$

4.  $600 - 268$

5.  $700 - 523$

6.  $600 - 333$

7.  $400 - 218$

8.  $500 - 272$

**Subtraction by compensation (taking too much)**

Sometimes it's easiest to take more away than you need and then add some back.  
Strange eh!  
Look, I'll show you.....

$$\begin{aligned}74 - 28 \\&= 74 - 30 + 2 \\&= 44 + 2 \\&= 46\end{aligned}$$

Can you see what is happening?  
I've taken 30 rather than 28, because that is easy.  
Then I add 2 back on.



Try these:

$$1. 64 - 38 = 64 - 40 + 2 = \boxed{\phantom{00}}$$

$$2. 43 - 27 = 43 - 30 + 3 = \boxed{\phantom{00}}$$

$$3. 62 - 49 = 62 - \boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$4. 55 - 28 = 55 - \boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$5. 73 - 55 = 73 - \boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

**Subtraction by compensation (taking too much)**

I find this works well when the number you are taking away is just below the next whole ten.

**Remember:**

$$73 - 48 = 73 - 50 + 2 = 23 + 2 = 25$$

Try these:

1.  $53 - 37 =$    $=$    $=$

2.  $84 - 58 =$    $=$    $=$

3.  $72 - 36 =$    $=$    $=$

4.  $56 - 18 =$    $=$    $=$

5.  $63 - 27 =$    $=$    $=$

6.  $92 - 68 =$    $=$    $=$

7.  $83 - 48 =$    $=$    $=$

8.  $94 - 77 =$    $=$    $=$

**Subtraction by compensation (taking too much)**

Have a go at these, using the  
'subtract too many' method!

**Remember:**

$$72 - 46 = 72 - 50 + 4 = 22 + 4 = 26$$

Try these:

1.  $55 - 36 =$    $=$    $=$

2.  $82 - 57 =$    $=$    $=$

3.  $75 - 38 =$    $=$    $=$

4.  $52 - 25 =$    $=$    $=$

5.  $73 - 48 =$    $=$    $=$

6.  $93 - 58 =$    $=$    $=$

7.  $86 - 68 =$    $=$    $=$

8.  $96 - 59 =$    $=$    $=$

**Subtracting hundreds using jottings**

Using jottings and 'taking too many' also works when subtracting hundreds and its hard to remember it all in your head. This time we take the next whole hundred!!!

Eg  $735 - 287 = 735 - 300 + 13 = 435 + 13 = 448$

Take 300 instead of 287 and then adjust

Try these, using the same method:

1.  $624 - 385 =$

2.  $435 - 196 =$

3.  $552 - 284 =$

4.  $348 - 194 =$

5.  $733 - 489 =$

**Subtracting hundreds using jottings**

Use jottings and take the next whole hundred from these.  
Then adjust and add.

Eg  $826 - 591 = 826 - 600 + 9 = 226 + 9 = 235$

Take 600 instead of 591 and then adjust

Try these, using the same method:

1.  $637 - 466 =$

2.  $458 - 293 =$

3.  $563 - 385 =$

4.  $876 - 691 =$

5.  $745 - 589 =$

**Subtraction by decomposition**

Yet another way to set  
your subbies out on paper!



Yep! But this way is more like the way  
your parents do it! Why don't you get an  
adult to show you what is going on!!

$$\begin{array}{rclcl}
 82 & = & 80 + 2 & = & 70 + 12 \\
 - 35 & = & \underline{30 + 5} & = & \underline{30 + 5} \\
 & & & & 40 + 7 = 47
 \end{array}$$

Try completing the missing numbers in these:

$$\begin{array}{rclcl}
 1. \quad 61 & = & 60 + \square & = & 50 + \square \\
 - 24 & = & \underline{20 + 4} & = & \underline{20 + 4} \\
 & & & & 30 + \square = \square
 \end{array}$$

$$\begin{array}{rclcl}
 2. \quad 83 & = & 80 + \square & = & \square + \square \\
 - 57 & = & \underline{50 + 7} & = & \underline{50 + 7} \\
 & & & & \square + \square = \square
 \end{array}$$

$$\begin{array}{rclcl}
 3. \quad 74 & = & 70 + \square & = & 60 + \square \\
 - 38 & = & \underline{30 + 8} & = & \underline{30 + 8} \\
 & & & & \square + \square = \square
 \end{array}$$

**Subtraction by decomposition**

**Try these: use jottings to show your working out.**

$$\begin{array}{rclclcl} 1. & 54 & & = & 50 & + & 4 & & = & 40 & + & 14 \\ & - 28 & & = & - 20 & + & 8 & & = & - 20 & + & 8 \end{array}$$

$$\begin{array}{r} 2. \quad 73 \\ - 46 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 93 \\ - 58 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 82 \\ - 27 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 64 \\ - 38 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 75 \\ - 36 \\ \hline \end{array}$$



### **Subtraction by decomposition**

**Try these:**

$$\begin{array}{r} 1. \quad 62 \\ - 35 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 75 \\ - 48 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 94 \\ - 77 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 85 \\ - 59 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 63 \\ - 47 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 82 \\ - 29 \\ \hline \end{array}$$

**Answers****Page 4**

1. + 2, + 20, + 4, 26      2. + 3, + 20, + 2, 25

**Page 5**

1. 25    2. 27    3. 18    4. 25    5. 17

**Page 6**

1. 48    2. 26    3. 28    4. 26    5. 25

**Page 7**

1. + 3, + 20, + 1, 24    2. + 2, + 20, + 5, 27

**Page 8**

1. 135    2. 115    3. 317    4. 321    5. 384    6. 234    7. 172    8. 411

**Page 9**

1. 146    2. 124    3. 328    4. 332    5. 177    6. 267    7. 182    8. 228

**Page 10**1. 26    2. 16    3.  $62 - 50 + 1 = 13$     4.  $55 - 30 + 2 = 27$     5.  $73 - 60 + 5 = 18$ **Page 11**

1. 16    2. 26    3. 36    4. 38    5. 36    6. 24    7. 35    8. 17

**Page 12**

1. 19    2. 25    3. 37    4. 27    5. 25    6. 35    7. 18    8. 37

**Page 13**

1. 239    2. 239    3. 268    4. 154    5. 244

**Page 14**

1. 171    2. 165    3. 178    4. 185    5. 156

**Page 15**1. 1, 11,  
7, 37      2. 3, 70, 13,  
20, 6, 26      3. 4, 14,  
30, 6, 36**Page 16**

1. 26    2. 27    3. 35    4. 55    5. 26    6. 39

**Page 17**

1. 27    2. 27    3. 17    4. 26    5. 16    6. 53