

Subtraction mental strategies – related facts

Knowing one addition fact means you also know two related subtraction facts.
Because $7 + 3 = 10$ you also know that $10 - 7 = 3$ and $10 - 3 = 7$

1 Show the related addition and subtraction facts for each set of digits. The first one is partially completed for you.

a

8	4	12	
8	+	4	=
4	+	8	=
12	-	4	=
12	-	8	=

b

7	9	16	
	+		=
	+		=
	-		=
	-		=

c

13	7	20	
	+		=
	+		=
	-		=
	-		=

d

10	8	18	
	+		=
	+		=
	-		=
	-		=

2 Ring a section of the dots in each box and write a related number sentence for each. The first one is partially done for you.

a

	<table border="1" style="display: inline-table;"> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">+</td> <td style="width: 40px;"></td> <td style="text-align: center;">=</td> <td style="text-align: center;">19</td> </tr> </table>	8	+		=	19
8	+		=	19		

b

	<table border="1" style="display: inline-table;"> <tr> <td style="width: 40px;"></td> <td style="text-align: center;">+</td> <td style="width: 40px;"></td> <td style="text-align: center;">=</td> <td style="text-align: center;">18</td> </tr> </table>		+		=	18
	+		=	18		

c

	<table border="1" style="display: inline-table;"> <tr> <td style="width: 40px;"></td> <td style="text-align: center;">+</td> <td style="width: 40px;"></td> <td style="text-align: center;">=</td> <td style="text-align: center;">16</td> </tr> </table>		+		=	16
	+		=	16		

Subtraction mental strategies – patterns

Recognising patterns in subtraction is useful in extending known facts.

Can you see the pattern in this set of facts?

$17 - 3 = 14$

$37 - 3 = 34$

$27 - 3 = 24$

$47 - 3 = 44$

- 1** Extend each set of subtraction patterns in the sets below and then shade the answers on this grid:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

a Set 1

$8 - 2 = \square$

$18 - 2 = \square$

$28 - 2 = \square$

$38 - 2 = \square$

$48 - 2 = \square$

$58 - 2 = \square$

$68 - 2 = \square$

$78 - 2 = \square$

b Set 2

$25 - 4 = \square$

$35 - 4 = \square$

$45 - 4 = \square$

$55 - 4 = \square$

$65 - 4 = \square$

$75 - 4 = \square$

$85 - 4 = \square$

$95 - 4 = \square$

c Set 3

$19 - 6 = \square$

$29 - 6 = \square$

$39 - 6 = \square$

$49 - 6 = \square$

$59 - 6 = \square$

$69 - 6 = \square$

$79 - 6 = \square$

$89 - 6 = \square$

- 2** Extend this subtraction pattern beyond the hundred grid:

a $88 - 7 = \square$

b $98 - 7 = \square$

c $108 - 7 = \square$

d $118 - 7 = \square$

e $128 - 7 = \square$

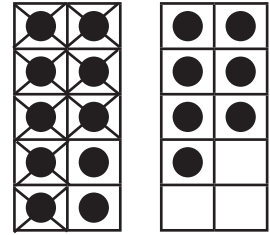
f $138 - 7 = \square$

Subtraction mental strategies – bridge to ten

A ten frame is useful to show the bridge to ten strategy when subtracting.

Here are 17 counters in 2 tens frames.

When you see $17 - 8 = \square$, cross out 8 from the first ten frame then add what is left.



$$17 - 8 = 9$$

- 1 Use each ten frame to subtract using bridge to ten. Cross out the number of counters that are subtracted from the first ten frame:

a $16 - 9 = \square$

b $13 - 7 = \square$

c $14 - 9 = \square$

d $15 - 8 = \square$

- 2 Write a subtraction fact that matches each ten frame:

a $\square - \square = \square$

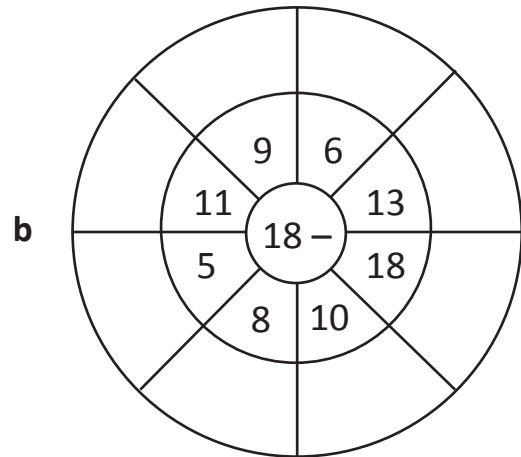
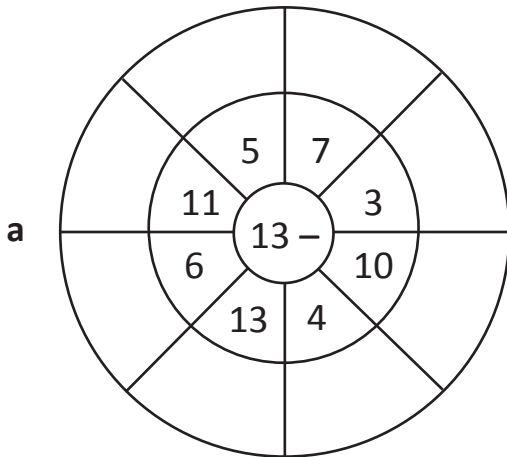
b $\square - \square = \square$

c $\square - \square = \square$

d $\square - \square = \square$

Subtraction mental strategies – bridge to ten

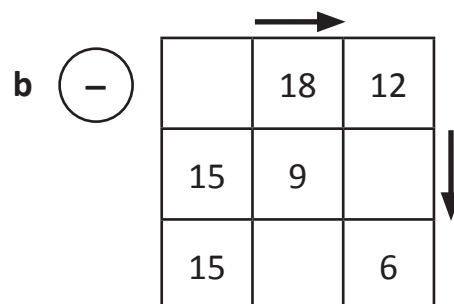
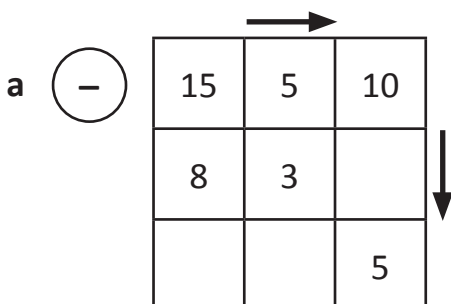
3 Complete the subtraction wheels. Use a ten frame in your mind.



4 Find the mystery number. Use the clues to write a matching subtraction fact. Add the answers for a to c, and then subtract from 50. This is the mystery number.

<p>a</p> $\square - \square = \square$	<p>b</p> $\square - \square = \square$	<p>c</p> $\square - \square = \square$
<p>Show your working here:</p> 		
<p>The mystery number is:</p>		

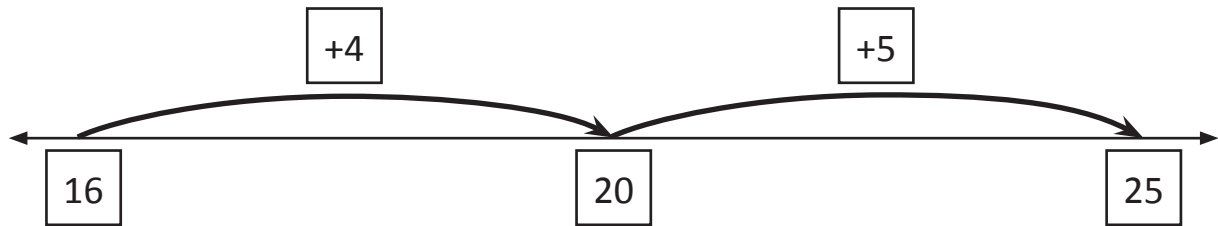
5 Complete these subtraction squares. Subtract the rows and columns as shown by the arrows:



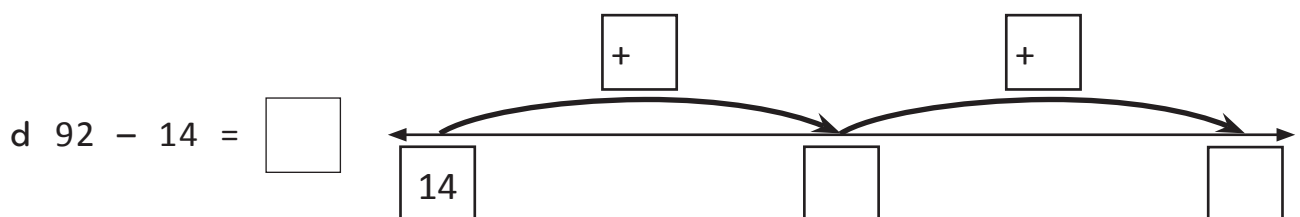
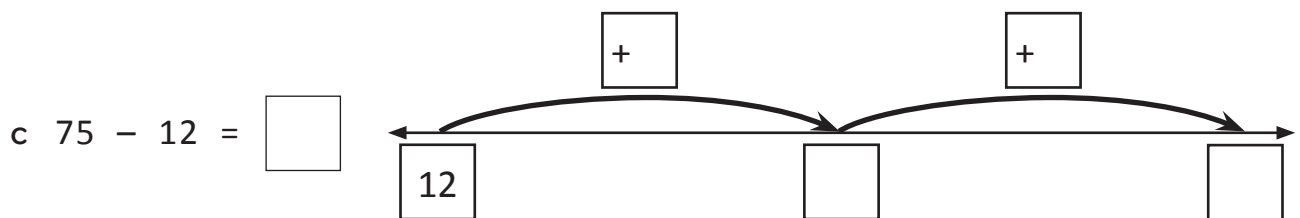
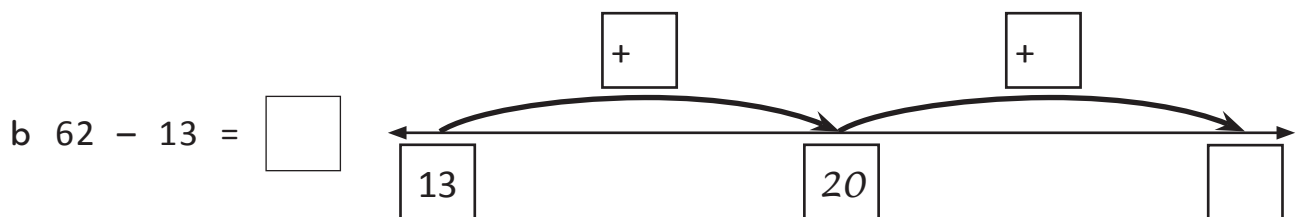
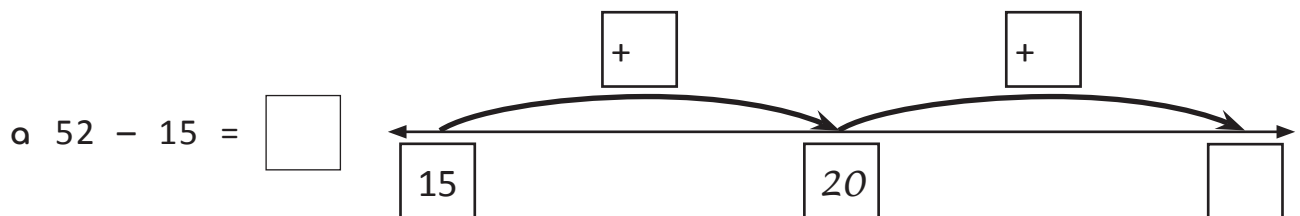
Subtraction mental strategies – bridge to ten

Bridge to the next ten and then count on what is left.

$$25 - 16 = \boxed{9}$$



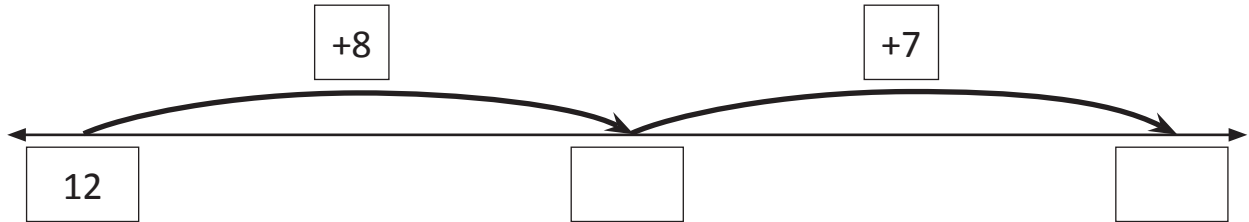
6 Use the number lines to bridge to ten:



Subtraction mental strategies – bridge to ten

7 Complete the subtraction frame to match this number line:

$$\square - \square = \square$$

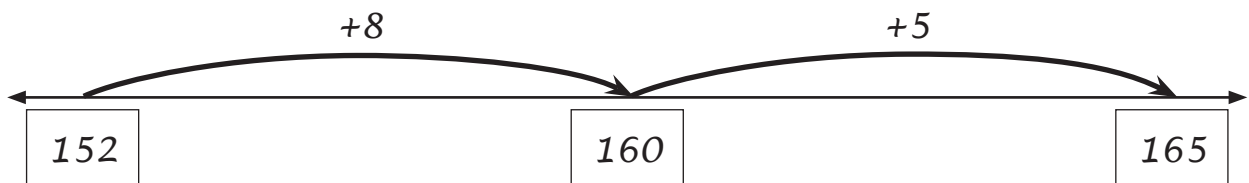


8 Here is a jar of 165 shells. Three kids guessed how many shells were in the jar. Use bridge to ten on the number lines to show how close each guess was. The first one is done for you.



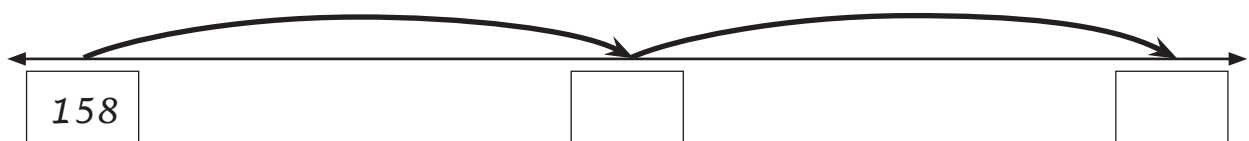
a Jo's guess: 152

$$165 - 152 = 13$$



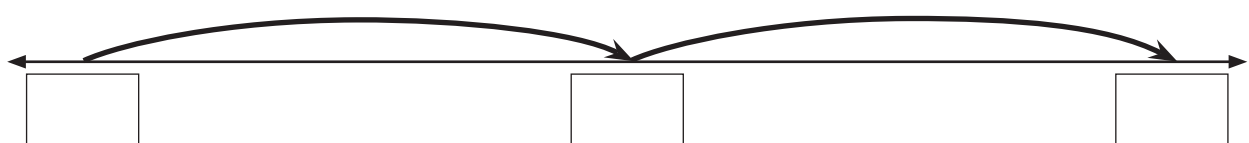
b Liam's guess: 158

$$\square - \square = \square$$



c Joel's guess: 154

$$\square - \square = \square$$

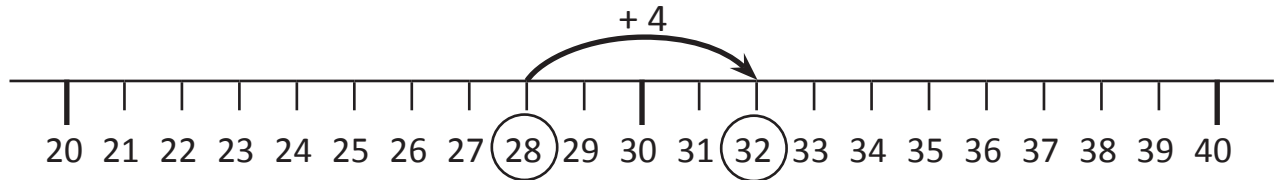


d Whose guess was the closest? _____

Subtraction mental strategies – counting on

If there is only a small difference between the numbers, use counting on to find the difference. See: $32 - 28 = \boxed{?}$

Think: What can you add to 28 to get 32? Count on by 4.



1 Find the difference between these by counting on.

a $32 - 29 = \boxed{}$

b $33 - 28 = \boxed{}$

c $34 - 27 = \boxed{}$

d $71 - 68 = \boxed{}$

e $82 - 76 = \boxed{}$

f $73 - 69 = \boxed{}$

g $83 - 77 = \boxed{}$

h $112 - 109 = \boxed{}$

i $201 - 196 = \boxed{}$

2 Use counting on to complete these function machines.

a

In	Rule	Out
41	- 37	
44		
42		
45		

b

In	Rule	Out
71	- 68	
73		
75		
72		

c

In	Rule	Out
122	- 119	
125		
124		
123		

d

In	Rule	Out
101	- 98	
105		
107		
103		

With function machines, numbers go in, have the rule applied and then come out.



REMEMBER

e

In	Rule	Out
96	- 89	
93		
92		
94		

Subtraction mental strategies – counting on

3 Complete each table of subtraction facts by counting on.

Look for the pattern in each table.



a Table 1

$21 - 19 =$	<input type="text"/>
$33 - 29 =$	<input type="text"/>
$48 - 39 =$	<input type="text"/>
$64 - 59 =$	<input type="text"/>

b Table 2

$33 - 28 =$	<input type="text"/>
$42 - 38 =$	<input type="text"/>
$51 - 48 =$	<input type="text"/>
$95 - 88 =$	<input type="text"/>

c Table 3

$20 - 17 =$	<input type="text"/>
$101 - 97 =$	<input type="text"/>
$33 - 27 =$	<input type="text"/>
$52 - 47 =$	<input type="text"/>

4 Complete each table of subtraction facts. Can you still use counting on?

a Table 1

<input type="text"/>	$- 38 = 4$
<input type="text"/>	$- 19 = 4$
<input type="text"/>	$- 47 = 4$
<input type="text"/>	$- 29 = 4$

b Table 2

<input type="text"/>	$- 18 = 3$
<input type="text"/>	$- 69 = 4$
<input type="text"/>	$- 98 = 4$
<input type="text"/>	$- 77 = 4$

c Table 3

<input type="text"/>	$- 79 = 6$
<input type="text"/>	$- 48 = 6$
<input type="text"/>	$- 39 = 6$
<input type="text"/>	$- 19 = 6$

5 Roll a die and write this number in the triangle, then complete the subtraction:

a $156 - \square = \triangle$

b $76 - \square = \triangle$

c $283 - \square = \triangle$

d $91 - \square = \triangle$

e $292 - \square = \triangle$

f $100 - \square = \triangle$

g $48 - \square = \triangle$

h $90 - \square = \triangle$

i $93 - \square = \triangle$

j $200 - \square = \triangle$

k $86 - \square = \triangle$

l $94 - \square = \triangle$

Subtraction mental strategies – doubles and near doubles

As long as you know addition doubles, you will know subtraction doubles.

$$5 + 5 = 10 \quad \text{so} \quad 10 - 5 = 5$$

1 Answer the addition doubles and write a matching subtraction double.

a $\boxed{6} + \boxed{6} = \boxed{}$ so $\boxed{} - \boxed{} = \boxed{}$

b $\boxed{9} + \boxed{9} = \boxed{}$ so $\boxed{} - \boxed{} = \boxed{}$

c $\boxed{12} + \boxed{12} = \boxed{}$ so $\boxed{} - \boxed{} = \boxed{}$

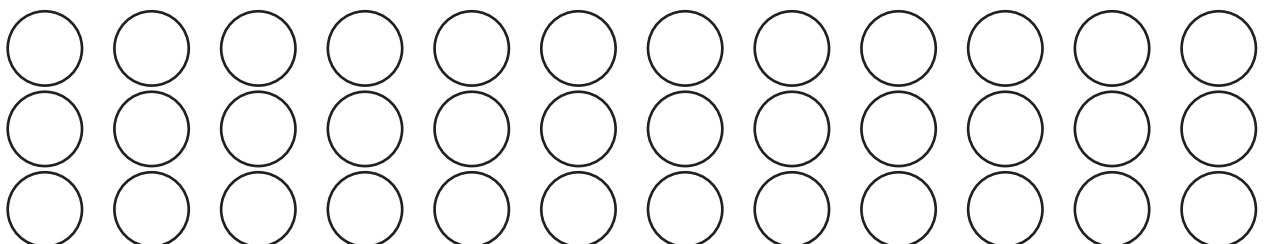
d $\boxed{8} + \boxed{8} = \boxed{}$ so $\boxed{} - \boxed{} = \boxed{}$

2 Play this game with a partner. Make copies of this page so you can play this game again. Player 1 chooses a subtraction double by tossing a counter onto the grid. Player 1 then ticks a circle in the column that has the answer. Player 2 repeats these steps. Take turns until someone has ticked a whole column on their own page.



24 – 12	22 – 11	20 – 10	18 – 9
16 – 8	14 – 7	12 – 6	10 – 5
8 – 4	6 – 3	4 – 2	2 – 1

1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	----	----	----



Subtraction mental strategies – doubles and near doubles

With near doubles subtraction, think of the doubles fact when you subtract, and then adjust.

See: $15 - 7$

Think: $(14 - 7) + 1$

See: $13 - 7$

Think: $(14 - 7) - 1$

- 3** Here's a doubles and near doubles addition chart. Remember, you need to know the addition doubles to use near doubles subtractions. Circle the doubles facts. The first two are circled for you $1 + 1 = 2$, $2 + 2 = 4$. Next, shade all the doubles facts +1. Then all the double facts -1.

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

See	Think	Answer
$17 - 8$	$(16 - 8) + 1$	
$15 - 7$		
$13 - 6$		
$11 - 5$		
$9 - 4$		

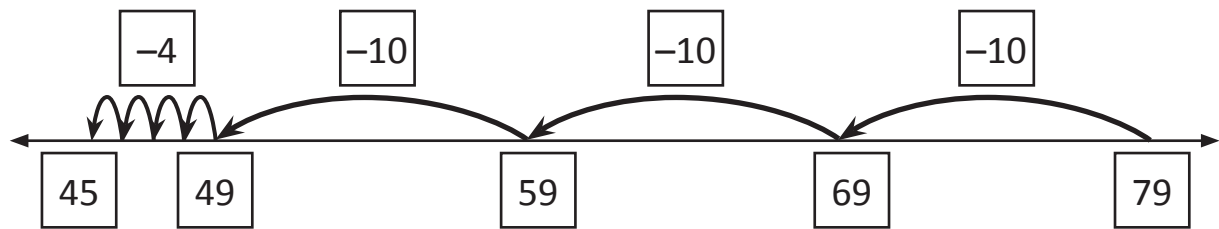
See	Think	Answer
$3 - 2$	$(4 - 2) - 1$	1
$5 - 3$		
$7 - 4$		
$9 - 5$		
$11 - 6$		

- 4** With this table, you need to think of doubles outside the grid.

See	Think	Answer
$31 - 15$		
$37 - 18$		
$51 - 25$		
$101 - 50$		
$61 - 30$		

Subtraction mental strategies – the jump strategy

The jump strategy is when you use a number line to jump in tens and then units. Look at $79 - 34$. First we jump back in tens and then units. So, $79 - 34 = 45$.



1 Subtract these using the jump strategy:

a $78 - 25 = \square$



b $93 - 31 = \square$



c $84 - 21 = \square$



d $79 - 36 = \square$



e $95 - 42 = \square$



Subtraction mental strategies – the jump strategy

- 2 Use the jump strategy to calculate how much more each person needs to purchase a family pass.



- a The Darnley family has saved \$56.



They need another:

- b The Sommers family has saved \$34.



They need another:

- c The Griffiths family has saved \$49.



They need another:

Subtraction mental strategies – the split strategy

The split strategy is where we make the subtraction easy by splitting the second number into tens and ones. We then subtract each part separately.

$$68 - 22 \begin{cases} 20 \\ 2 \end{cases} \rightarrow 68 - 20 = 48 \rightarrow 48 - 2 = 46$$

1 Practise subtracting tens from these numbers:

-	10	30	20	30	50
96					
71					

2 Use the split strategy with these problems:

a $73 - 34$ $\begin{cases} \square \\ \square \end{cases}$ \rightarrow \square \rightarrow \square

b $96 - 65$ $\begin{cases} \square \\ \square \end{cases}$ \rightarrow \square \rightarrow \square

c $81 - 24$ $\begin{cases} \square \\ \square \end{cases}$ \rightarrow \square \rightarrow \square

d $69 - 23$ $\begin{cases} \square \\ \square \end{cases}$ \rightarrow \square \rightarrow \square

e $106 - 43$ $\begin{cases} \square \\ \square \end{cases}$ \rightarrow \square \rightarrow \square

Subtraction mental strategies – the split strategy

3 Use the split strategy to solve this cross number puzzle:

1			2		3	4
		5				
	6			7		
8			9		10	11
		12				
	13			14	15	
	16				17	

Across

1 $50 - 18 = \square$

3 $100 - 43 = \square$

5 $135 - 45 = \square$

6 $70 - 12 = \square$

7 $87 - 23 = \square$

8 $86 - 33 = \square$

10 $78 - 53 = \square$

12 $64 - 16 = \square$

14 $72 - 36 = \square$

16 $105 - 43 = \square$

17 $160 - 117 = \square$

Down

2 $88 - 68 = \square$

4 $128 - 56 = \square$

5 $200 - 102 = \square$

6 $89 - 36 = \square$

8 $88 - 32 = \square$

9 $150 - 112 = \square$

11 $160 - 101 = \square$

13 $133 - 57 = \square$

15 $99 - 35 = \square$



This is a game for two players. You will need a die and a copy of this page to record your answers. You may like to make a few copies so you can play again.



The aim of this game is to get the lowest finishing score. Player 1 rolls the die and writes this number in the first column. Next, they decide whether to add 10 or multiply by 5 and subtract this number from 100. The result will be their running score and Player 1 will subtract from their running score on their next turn. Player 2 repeats these steps. Continue taking turns until the table is filled. The lowest finishing score wins.

I have to be careful when choosing whether to + 10 or $\times 5$ because I don't want to get below zero but I want to get close to zero!



THINK

Player 1

Number on die	Number used	Running score
Finishing score		

Player 2

Number on die	Number used	Running score
Finishing score		



Getting ready

This is a game for two players. You will need two dice and 10 counters each, in two different colours.



What to do

The aim of the game is to use all your counters first. Player 1 rolls the two dice and makes a 2 digit number from the numbers rolled. They subtract this 2 digit number from 100, find the answer on the grid and cover the number with a counter.

Player 2 repeats this process. The winner is the first player to get rid of all their counters.

85	38	39	79	86	59
68	55	57	69	37	54
34	87	36	44	56	47
58	49	64	66	77	46
45	78	67	75	76	89
74	88	84	65	48	35