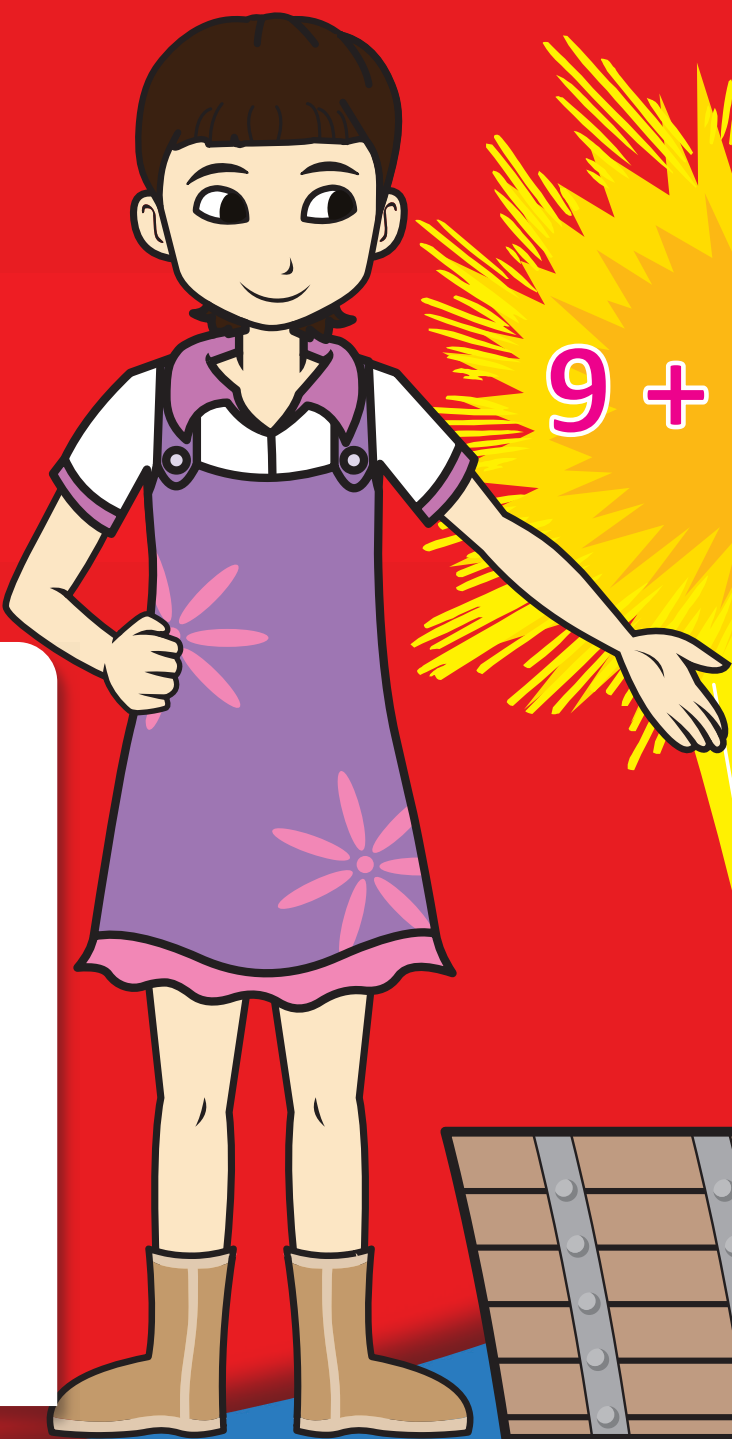


# Addition and Subtraction



$$9 + 7 = 16$$

Name \_\_\_\_\_

# Series E – Addition and Subtraction

## Contents

### Topic 1 – Addition mental strategies (pp. 1–15)

Date completed

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- doubles and near doubles \_\_\_\_\_
- bridge to ten \_\_\_\_\_
- jump strategy \_\_\_\_\_
- split strategy version 1 \_\_\_\_\_
- split strategy version 2 \_\_\_\_\_
- applying the split strategy \_\_\_\_\_
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- category match – *apply* \_\_\_\_\_

### Topic 2 – Subtraction mental strategies (pp. 16–27)

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# Series E – Addition and Subtraction

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### Topic 3 – Written methods (pp. 28–35)

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- finding change \_\_\_\_\_
- using money \_\_\_\_\_
- calculate the change – *apply* \_\_\_\_\_

Series Author:

Nicola Herringer

# Addition mental strategies – number complements

Two numbers that add together are called complements.

12 and 8 are complements to 20 because  $12 + 8 = 20$

35 and 65 are complements to 100 because  $35 + 65 = 100$

## 1 Loop the complements in each set:

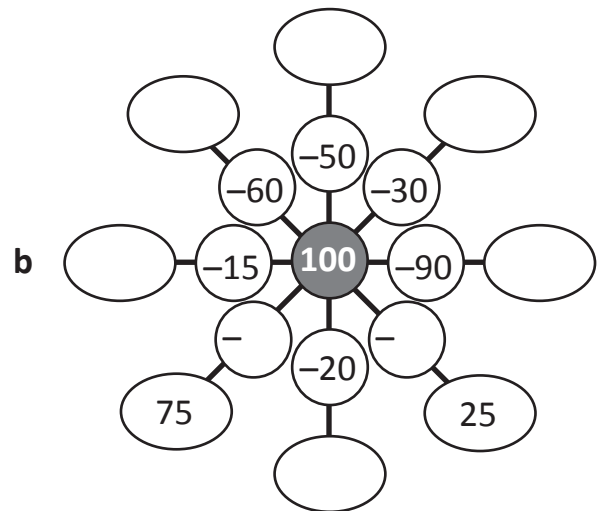
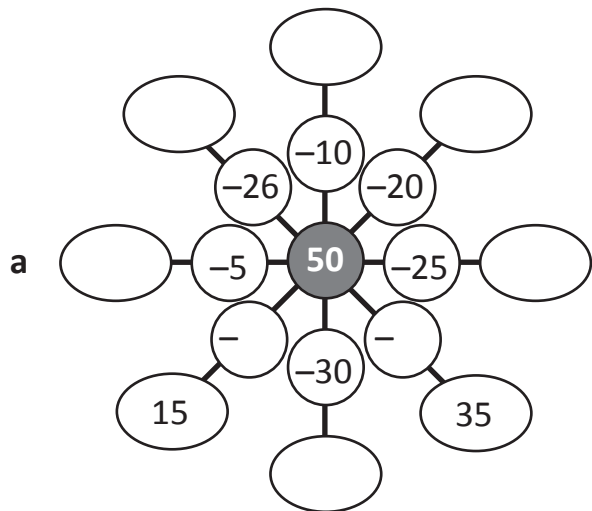
**a** Complements to 20. There are three to find. The first one has been done for you.

7	4	14
10	1	6
10	12	8

**b** Complements to 50. There are eight to find:

26	12	30	20
24	38	15	35
17	45	5	40
33	18	32	10

## 2 Complete these complement webs. Start with the centre number and subtract. Write your answers in the ovals:



## 3 Show how knowing the complements to 20, 50 and 100 makes adding easier. You may want to loop the complements first. The first one has been done for you.

**a**  $(80 + 20) + (15 + 5) = 100 + 20 = 120$

**b**  $18 + 2 + 30 + 20 + 10 + 10 =$  \_\_\_\_\_

**c**  $25 + 25 + 40 + 30 + 20 + 10 =$  \_\_\_\_\_

**d**  $15 + 35 + 20 + 30 + 10 + 12 =$  \_\_\_\_\_

# Addition mental strategies – number complements

## 4 Complete the complements to 50:

a  + 38 = 50

b  + 17 = 50

c 25 +  = 50

d 32 +  = 50

e  + 46 = 50

f  + 28 = 50

g 14 +  = 50

h 7 +  = 50

## 5 Complete the complements to 100:

a  + 54 = 100

b  + 22 = 100

c  + 46 = 100

d 33 +  = 100

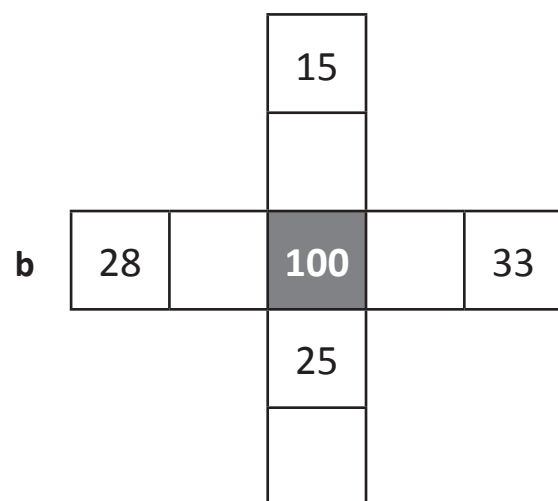
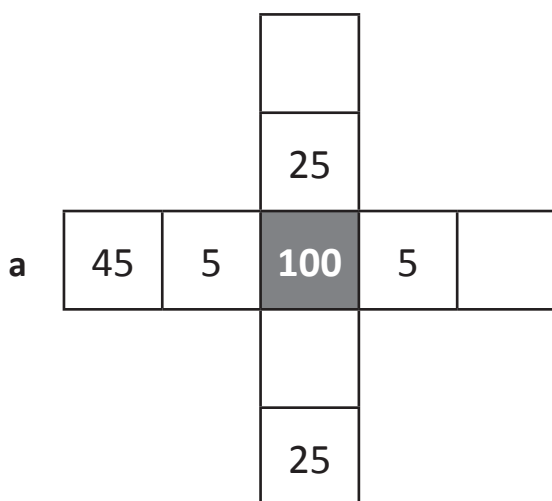
e 62 +  = 100

f 25 +  = 100

g  + 45 = 100

h  + 48 = 100

## 6 Complete the addition crosses where the numbers add to 100 vertically and horizontally. The rules are, they must be symmetrical and only contain multiples of 5.



# Addition mental strategies – doubles and near doubles

Doubles facts are the same number added together.

$$3 + 3 = 6 \text{ is the same as saying double 3 is 6.}$$

Near doubles is when you use the doubles fact and then adjust either by adding or subtracting.

See:  $6 + 7$   
Think: double 6 + 1

- 1** Circle all the doubles facts. The first two are circled for you. Next, shade all the doubles facts +1, then 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

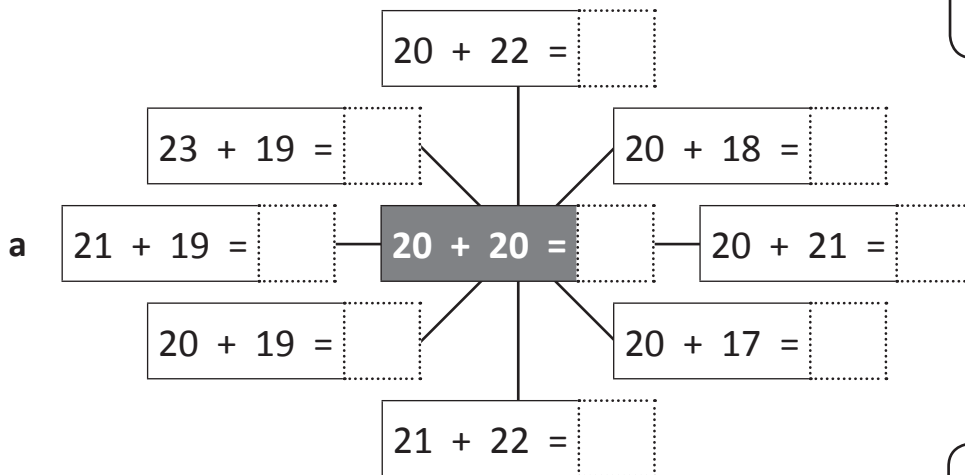
- a** double 1 =
- double 2 =
- double 3 =
- double 4 =
- double 5 =
- double 6 =
- double 7 =
- double 8 =
- double 9 =

- b** double 1 + 1 =
- double 2 + 1 =
- double 3 + 1 =
- double 4 + 1 =
- double 5 + 1 =
- double 6 + 1 =
- double 7 + 1 =
- double 8 + 1 =
- double 9 + 1 =

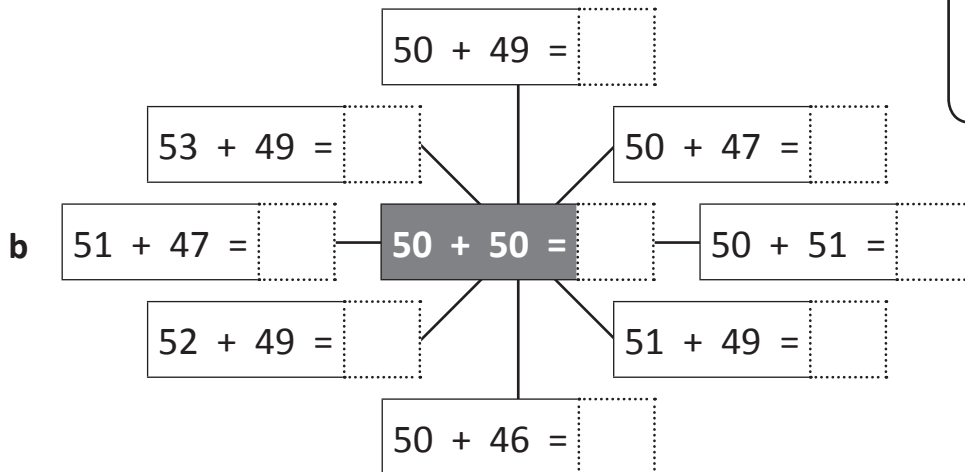
- c** double 1 - 1 =
- double 2 - 1 =
- double 3 - 1 =
- double 4 - 1 =
- double 5 - 1 =
- double 6 - 1 =
- double 7 - 1 =
- double 8 - 1 =
- double 9 - 1 =

# Addition mental strategies – doubles and near doubles

- 2 Complete each near double diagram. Start with the double in the centre and work clockwise. You will need to think in doubles and then adjust.



Start by looking at the first number.  
For  $21 + 18$ , think double 20 add 1 and then subtract 2 so the answer is 39.



Start by looking at the first number.  
For  $51 + 48$ , think double 50 add 1 and then subtract 2 so the answer is 99.



CHECK

- 3 Show how you would explain to someone how to add each of these using near doubles.

a  $30 + 32$

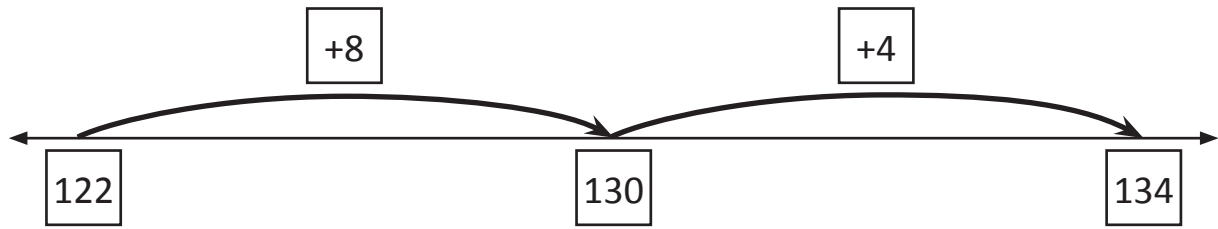
b  $25 + 23$

c  $100 + 97$

# Addition mental strategies – bridge to ten

Bridge to ten is when we count on to the next 10 and then add what is left.

$$122 + 12 = \boxed{134}$$



**1** How many to the next ten? The first one has been done for you.

a  $145 \xrightarrow{\boxed{+5}} 150$

b  $243 \xrightarrow{\boxed{\phantom{+5}}} \boxed{\phantom{150}}$

c  $558 \xrightarrow{\boxed{\phantom{+5}}} \boxed{\phantom{150}}$

d  $167 \xrightarrow{\boxed{\phantom{+5}}} \boxed{\phantom{150}}$

e  $346 \xrightarrow{\boxed{\phantom{+5}}} \boxed{\phantom{150}}$

f  $179 \xrightarrow{\boxed{\phantom{+5}}} \boxed{\phantom{150}}$

**2** Use the number lines to bridge to ten:

a  $253 + 15 = \boxed{\phantom{000}}$

A number line starting at 253. There are two '+' signs above the line. The first arrow points from 253 to a box. The second arrow points from that box to another box.

b  $464 + 14 = \boxed{\phantom{000}}$

A number line starting at 464. There are two '+' signs above the line. The first arrow points from 464 to a box. The second arrow points from that box to another box.

c  $671 + 17 = \boxed{\phantom{000}}$

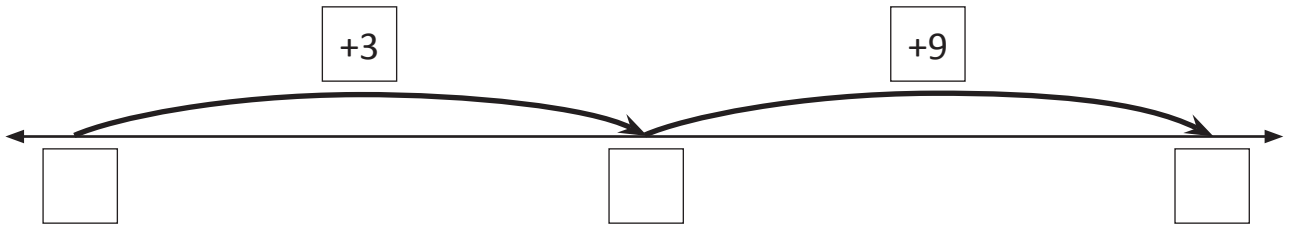
A number line starting at 671. There are two '+' signs above the line. The first arrow points from 671 to a box. The second arrow points from that box to another box.



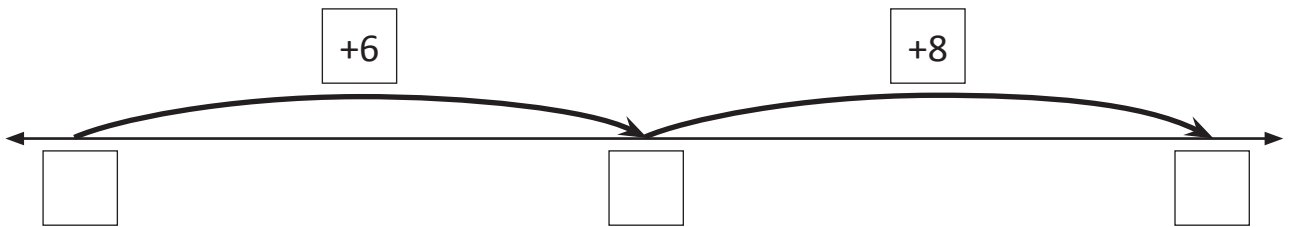
# Addition mental strategies – bridge to ten

3 Write a problem that matches the number line:

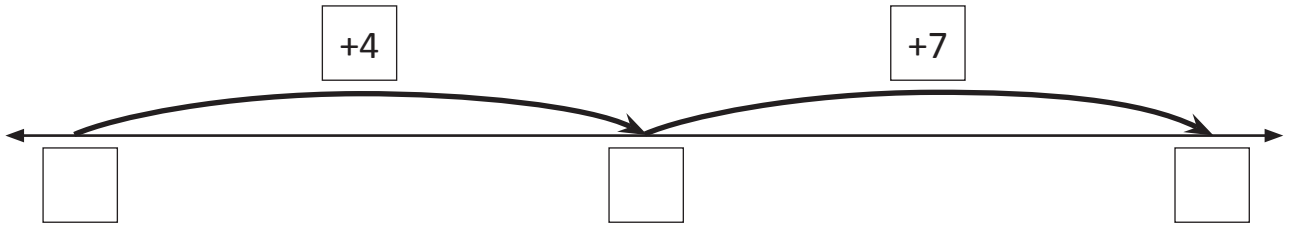
a  $\square + \square = \square$



b  $\square + \square = \square$



c  $\square + \square = \square$



4 Complete these addition grids by bridging to the next ten in your head:

a

+	356	78	586	287	385	984
12						

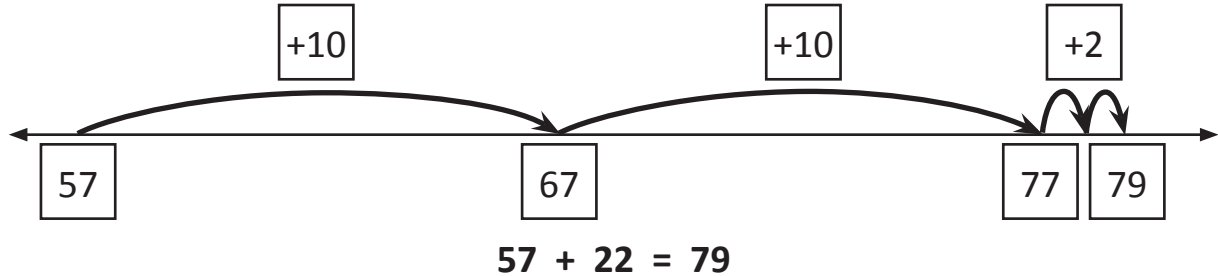
b

+	298	566	252	176	368	146
16						

# Addition mental strategies – jump strategy

When we add, we can use the jump strategy to help us. Look at  $57 + 22$ :

- 1 First we jump up by the tens.
- 2 Then we jump up by the units.



## 1 Practise jumping in tens along the arrows:

a

b

c

## 2 Use the jump strategy to add these:

a  $78 + 52 =$

b  $115 + 44 =$

c  $185 + 63 =$

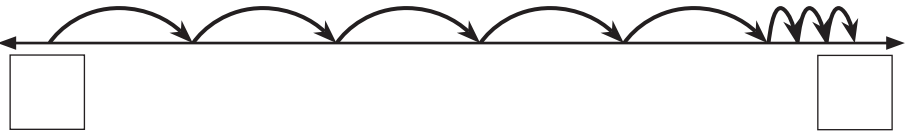
# Addition mental strategies – jump strategy

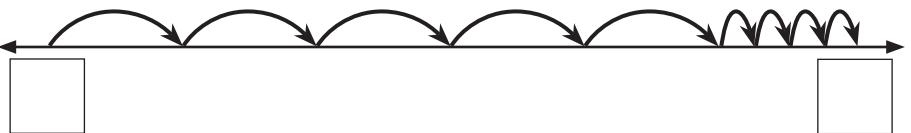
3 Below are some number lines that only show the jumps. Complete the number line for the problem that matches and then write the complete problem.

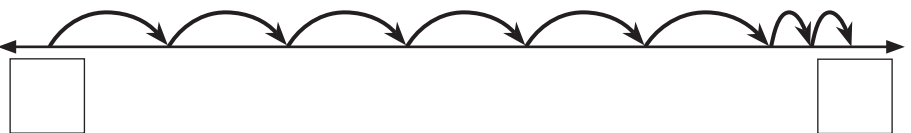
$187 + 54$

$179 + 62$

$78 + 53$

a  +  =  

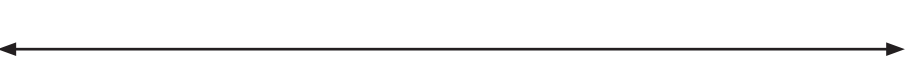
b  +  =  

c  +  =  

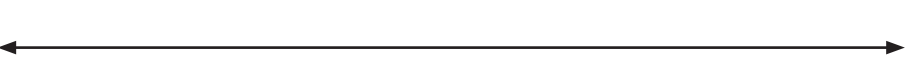
4 Use the jump strategy to add these:

Cupcake sales				
Day	Red velvet	Lemon drop	Coconut	Chocolate
Saturday	165	82	55	135
Sunday	43	98	65	36

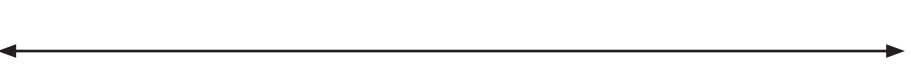
a How many red velvet cupcakes were sold over the weekend?

+  =  

b How many lemon drop and coconut cupcakes were sold on Saturday?

+  =  

c How many chocolate cupcakes were sold over the weekend?

+  =  

# Addition mental strategies – split strategy version 1

When adding large numbers in our heads, it can be easier to split one of the numbers into parts and add each part separately.

$$112 + 46 \begin{cases} 40 \\ 6 \end{cases} \longrightarrow 112 + 40 = 152 \longrightarrow 152 + 6 = 158$$

- 1** Practise separating these numbers into tens and units. The first one has been done for you.

a  $48 \begin{cases} 40 \\ 8 \end{cases}$

b  $63 \begin{cases} \square \\ \square \end{cases}$

c  $52 \begin{cases} \square \\ \square \end{cases}$

d  $27 \begin{cases} \square \\ \square \end{cases}$

- 2** Practise adding the tens to these numbers:

+	20	50	30	70	60
123					
214					

- 3** Use the split strategy with these problems. The first one has been done for you.

a  $48 + 53 \begin{cases} 50 \\ 3 \end{cases} \longrightarrow 48 + 50 = 98 \longrightarrow 98 + 3 = 101$

b  $65 + 38 \begin{cases} \square \\ \square \end{cases} \longrightarrow \square \longrightarrow \square$

c  $112 + 25 \begin{cases} \square \\ \square \end{cases} \longrightarrow \square \longrightarrow \square$

d  $332 + 66 \begin{cases} \square \\ \square \end{cases} \longrightarrow \square \longrightarrow \square$

# Addition mental strategies – split strategy version 2

Here is another way to use the split strategy.

$$\begin{aligned} 42 + 32 &= (4 \text{ tens} + 3 \text{ tens}) + (2 \text{ units} + 2 \text{ units}) \\ &= 7 \text{ tens} + 4 \text{ units} \\ &= 74 \end{aligned}$$

1 Use this way to add these:

$$\begin{aligned} \text{a } 63 + 37 &= \left( \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \right) + \left( \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \right) \\ &\quad \text{tens} \quad \text{tens} \quad \text{units} \quad \text{units} \\ &= \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \\ &\quad \text{tens} \quad \text{units} \\ &= \begin{array}{|c|} \hline \square \\ \hline \end{array} \end{aligned}$$

$$\begin{aligned} \text{b } 88 + 23 &= \left( \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \right) + \left( \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \right) \\ &\quad \text{tens} \quad \text{tens} \quad \text{units} \quad \text{units} \\ &= \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \\ &\quad \text{tens} \quad \text{units} \\ &= \begin{array}{|c|} \hline \square \\ \hline \end{array} \end{aligned}$$

$$\begin{aligned} \text{c } 56 + 15 &= \left( \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \right) + \left( \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \right) \\ &\quad \text{tens} \quad \text{tens} \quad \text{units} \quad \text{units} \\ &= \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \\ &\quad \text{tens} \quad \text{units} \\ &= \begin{array}{|c|} \hline \square \\ \hline \end{array} \end{aligned}$$

$$\begin{aligned} \text{d } 65 + 28 &= \left( \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \right) + \left( \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \right) \\ &\quad \text{tens} \quad \text{tens} \quad \text{units} \quad \text{units} \\ &= \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \end{array} \\ &\quad \text{tens} \quad \text{units} \\ &= \begin{array}{|c|} \hline \square \\ \hline \end{array} \end{aligned}$$

Ten units are 1 ten.  
So if I have 3 tens + 10 units,  
I really have 4 tens or 40.



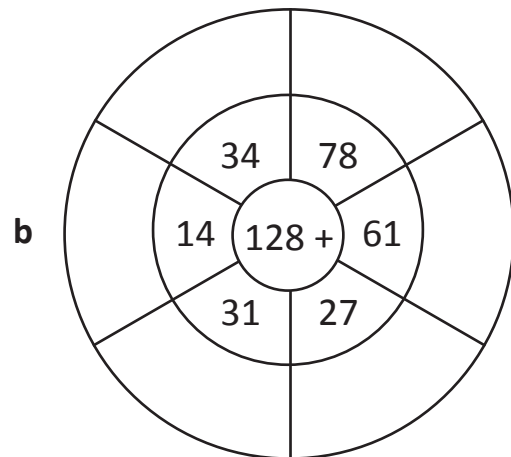
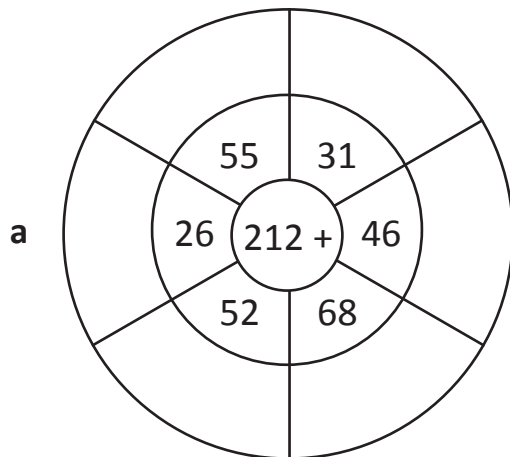
**REMEMBER**

2 Use either version of the split strategy to complete this table:

+	23	78	63	55	36
45					
39					

# Addition mental strategies – applying the split strategy

1 Complete these addition wheels with the split strategy:



The split strategy is useful when adding three 2 digit numbers.

Try adding tens, then the units and recording it this way:

$$61 + 43 + 44 = 14 \text{ tens} + 8 \text{ units} = 140 + 8 = 148$$

2 Record these place value amounts:

a 8 tens =

b 17 tens =

c 15 tens =

d 5 units =

e 12 tens =

f 16 units =

3 At circus school, a competition was held to see who could stay on a unicycle the longest. The time was recorded in seconds. Using the split strategy, add up each person's time. The first one has been done for you.

	Names	Time in seconds	Working	Total in seconds
a	Lizzie	22, 14, 3	<i>3 tens + 9 units</i>	39
b	Dan	23, 4, 11		
c	Lily	21, 6, 14		
d	Jo	20, 8, 12		
e	Julio	4, 22, 12		



The winner is: \_\_\_\_\_

# Addition mental strategies – compensation strategy

Sometimes we round one number in the problem to make it easier to do in our heads. Then we adjust our answer to compensate:

$$\begin{array}{rcl} 23 + 19 & = & \boxed{42} \\ 23 + 20 & \text{\textcircled{-1}} & \text{I rounded up by 1,} \\ 43 & \text{\textcircled{-1}} & = 42 \text{ so I subtract 1.} \end{array}$$

## 1 Practise rounding:

a  $\boxed{148} \rightarrow \boxed{\phantom{000}}$

b  $\boxed{39} \rightarrow \boxed{\phantom{000}}$

c  $\boxed{47} \rightarrow \boxed{\phantom{000}}$

d  $\boxed{109} \rightarrow \boxed{\phantom{000}}$

e  $\boxed{96} \rightarrow \boxed{\phantom{000}}$

f  $\boxed{199} \rightarrow \boxed{\phantom{000}}$

## 2 Use the compensation method with these problems. Round the second number up to the closest ten. Compensate by subtracting.

a  $32 + 29 = \boxed{\phantom{000}}$   
 $32 + 30 \text{\textcircled{+1}}$   
 $\underline{\phantom{000}} \text{\textcircled{-1}} = \boxed{\phantom{000}}$

b  $55 + 38 = \boxed{\phantom{000}}$   
 $55 + 40 \text{\textcircled{+2}}$   
 $\underline{\phantom{000}} \text{\textcircled{-2}} = \boxed{\phantom{000}}$



c  $66 + 19 = \boxed{\phantom{000}}$   
 $66 + \underline{\phantom{00}} \text{\textcircled{+1}}$   
 $\underline{\phantom{000}} \text{\textcircled{-1}} = \boxed{\phantom{000}}$

d  $22 + 39 = \boxed{\phantom{000}}$   
 $22 + \underline{\phantom{00}} \text{\textcircled{+1}}$   
 $\underline{\phantom{000}} \text{\textcircled{-1}} = \boxed{\phantom{000}}$



# Addition mental strategies – compensation strategy

- 3 Now let's try the compensation method with rounding the second number down. Round these numbers down to the closest ten. Compensate by adding.



a  $75 + 22 = \square$

$75 + 20$    
 \_\_\_\_\_  =  $\square$



b  $45 + 41 = \square$

$45 + 40$    
 \_\_\_\_\_  =  $\square$

c  $26 + 32 = \square$

$26 + \underline{\quad}$    
 \_\_\_\_\_  =  $\square$

d  $66 + 53 = \square$

$66 + \underline{\quad}$    
 \_\_\_\_\_  =  $\square$

When we round down we compensate by adding.  
 When we round up we compensate by subtracting.



- 4 Use the compensation method to solve this riddle.

What vehicle is spelled the same forwards as it is backwards?

Match the letter to the answer in the grid at the bottom.

a  $125 + 48 = \square$  A

b  $115 + 41 = \square$  R

c  $55 + 51 = \square$  C

d  $715 + 28 = \square$  E

--	--	--	--	--	--	--

156    173    106    743    106    173    156





This is a game for two players. Each player will need to copy and cut out the cards on page 15 as well as the game board below.



Each player cuts out a set of the cards. Join both sets and shuffle well. Place face down into one pile in the centre. Each player turns over four of the digit cards and places each digit on their game board. Digit cards can't be moved once they have been placed.

Players then use a mental strategy to work out the answer and score points according to which category the answer fits into. Some answers may fit into more than one category.

Ends in even number	1 point
Ends in odd number	2 points
Less than 50	5 points
Greater than 150	10 points
Multiple of 5	10 points
Between 120 and 140	5 points

		+			=
--	--	---	--	--	---



9	8	7	6	5
4	3	2	1	9
9	8	7	6	5
4	3	2	1	9
4	3	2	1	9
4	3	2	1	9

# Subtraction mental strategies – addition and subtraction

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

**1** Make a group of facts for each pair of numbers. The first one has been done for you.

a

15	35
$15 + 35 = 50$	
$50 - 15 = 35$	
$50 - 35 = 15$	

b

45	55

c

73	27

d

105	15

e

120	10

f

135	10

**2** Complete each number trail:

a

150	$\xrightarrow{+10}$		$\xrightarrow{-15}$		$\xrightarrow{+50}$		$\xrightarrow{+30}$	
-----	---------------------	--	---------------------	--	---------------------	--	---------------------	--

b

200	$\xrightarrow{-50}$		$\xrightarrow{+25}$		$\xrightarrow{-30}$		$\xrightarrow{+55}$	
-----	---------------------	--	---------------------	--	---------------------	--	---------------------	--

c

99	$\xrightarrow{+11}$		$\xrightarrow{+50}$		$\xrightarrow{+50}$		$\xrightarrow{-20}$	
----	---------------------	--	---------------------	--	---------------------	--	---------------------	--

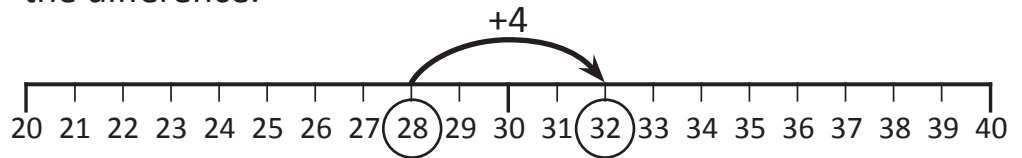
d

76	$\xrightarrow{+24}$		$\xrightarrow{+35}$		$\xrightarrow{+15}$		$\xrightarrow{-25}$	
----	---------------------	--	---------------------	--	---------------------	--	---------------------	--

# Subtraction mental strategies – subtraction strategy review

Look for patterns:  $6 - 2 = 4$  so  $60 - 20 = 40$  and  $600 - 200 = 400$   
 $72 - 9 = 63$  so  $62 - 9 = 53$  and  $52 - 9 = 43$

Count on: When numbers are close together, you can count on to find the difference.



Complements:  $35 + 65 = 100$  so  $100 - 35 = 65$   
 $12 + 8 = 20$  so  $20 - 8 = 12$

Near doubles: See:  $15 - 7$  Think:  $(14 - 7) + 1$

- 1 This hundred grid makes it easier to see subtraction patterns. Use it to complete the sets.

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

Set 1			Set 2		
17	-	9 =	21	-	6 =
27	-	9 =	31	-	6 =
37	-	9 =	41	-	6 =
47	-	9 =	51	-	6 =
57	-	9 =	61	-	6 =
67	-	9 =	71	-	6 =

- 2 Extend these subtractions according to the patterns:

a	$9 - 6 =$	$90 - 60 =$	$900 - 600 =$
b	$14 - 8 =$	$140 - 80 =$	$1\ 400 - 800 =$
c	$24 - 14 =$		
d	$69 - 32 =$		

# Subtraction mental strategies – subtraction strategy review

3 Use counting on to complete these:

a  $32 - 29 =$

b  $33 - 28 =$

c  $34 - 27 =$

d  $71 - 68 =$

e  $82 - 76 =$

f  $73 - 69 =$

g  $83 - 77 =$

h  $112 - 109 =$

i  $201 - 196 =$

4 Complete these function tables using counting on:

a

In	Rule	Out
120	- 118	
123		
126		
124		

b

In	Rule	Out
102	- 96	
104		
108		
101		

c

In	Rule	Out
87	- 78	
81		
85		
83		

5 Complete this cross number puzzle. Using complements to 100 will help.

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

Across

1  $100 - 80 =$

2  $100 - 89 =$

3  $100 - 5 =$

4  $100 - 28 =$

5  $100 - 22 =$

7  $100 - 64 =$

8  $100 - 49 =$

9  $100 - 61 =$

10  $100 - 52 =$

11  $100 - 66 =$

12  $100 - 75 =$

Down

1  $100 - 78 =$

2  $100 - 88 =$

3  $100 - 2 =$

4  $100 - 24 =$

5  $100 - 29 =$

6  $100 - 11 =$

7  $100 - 62 =$

8  $100 - 46 =$

9  $100 - 65 =$

# Subtraction mental strategies – subtraction strategy review

6 Use your knowledge of doubles and near doubles to complete these subtraction tables. The first one in each has been done for you.

a

See	Think
$19 - 9 =$ <input type="text"/>	$(18 - 9) + 1$
$201 - 100 =$ <input type="text"/>	
$141 - 70 =$ <input type="text"/>	
$71 - 35 =$ <input type="text"/>	

b

See	Think
$15 - 8 =$ <input type="text"/>	$(16 - 8) - 1$
$31 - 16 =$ <input type="text"/>	
$99 - 50 =$ <input type="text"/>	
$87 - 44 =$ <input type="text"/>	

c

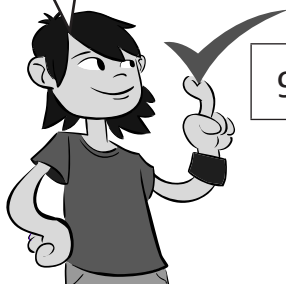
See	Think
$26 - 12 =$ <input type="text"/>	$(24 - 12) + 2$
$52 - 25 =$ <input type="text"/>	
$68 - 33 =$ <input type="text"/>	
$104 - 51 =$ <input type="text"/>	

d

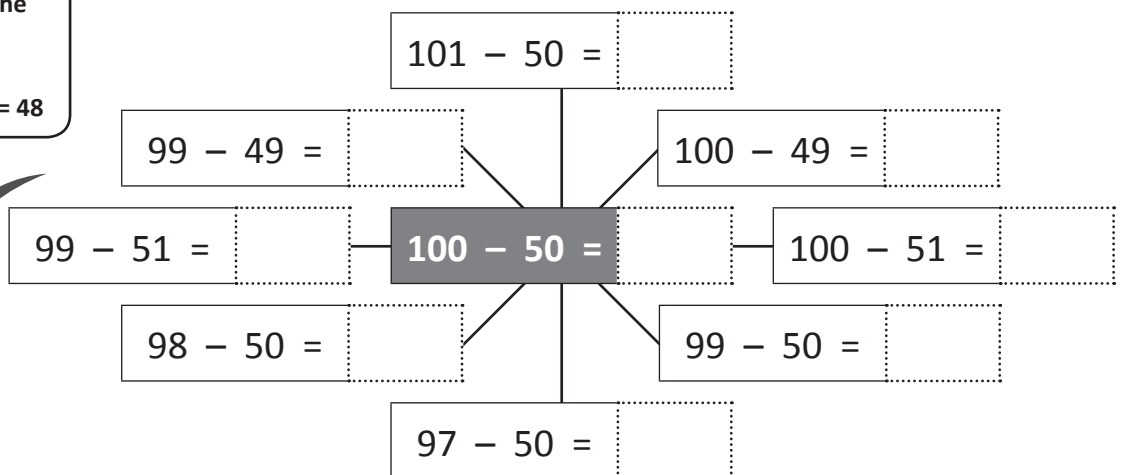
See	Think
$24 - 13 =$ <input type="text"/>	$(26 - 13) - 2$
$48 - 25 =$ <input type="text"/>	
$70 - 36 =$ <input type="text"/>	
$78 - 40 =$ <input type="text"/>	

7 Complete this near double web, which is based on the subtraction double in the centre. Start in the centre and work clockwise:

Start by looking at the first number.  
For  $99 - 51$ , think  $100 - 50$  subtract  $2 = 48$



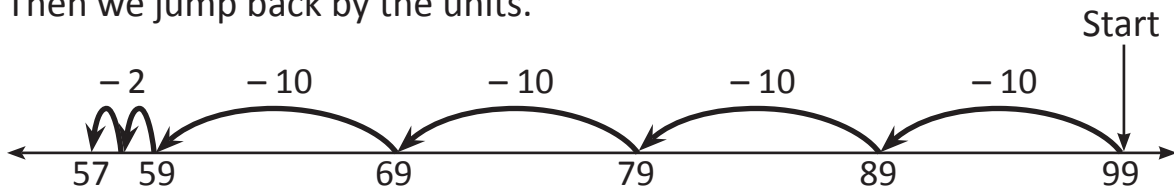
CHECK



# Subtraction mental strategies – jump strategy

When we subtract, we can use the jump strategy to help us. Look at  $99 - 42$ :

- 1 First we jump back by the tens.
- 2 Then we jump back by the units.



$$99 - 42 = 57$$

1 Solve these using the jump strategy:

a  $125 - 42 =$



b  $168 - 36 =$



c  $335 - 54 =$



d  $245 - 45 =$



# Subtraction mental strategies – jump strategy

- 2 It's stocktake time at Candilicious sweet shop. Use the jump strategy to work out how many of each type of sweet has been sold.



Sweets	Started with	Amount left	Sold
Cinnamon drops	254	45	
Caramel melts	186	58	
Milk bottles	145	65	
Chocolate buds	165	34	

- a Cinnamon drops

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



- b Caramel melts

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



- c Milk bottles

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



- d Chocolate buds

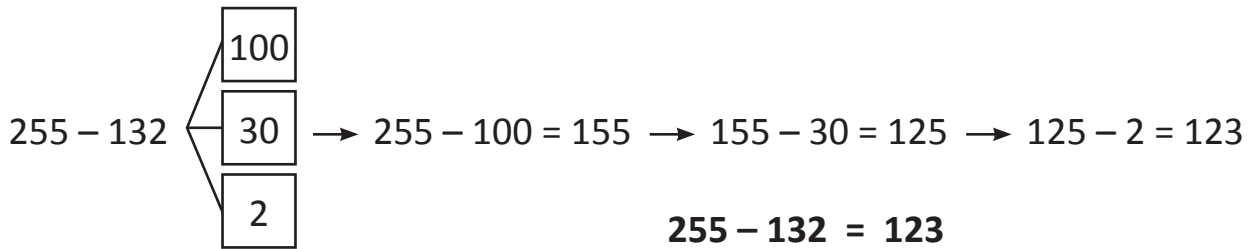
$$\square - \square = \square$$



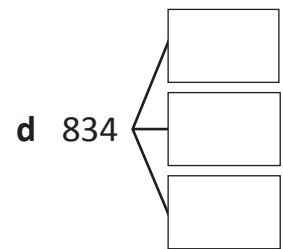
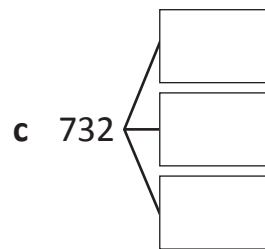
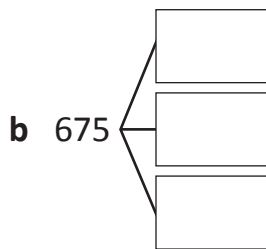
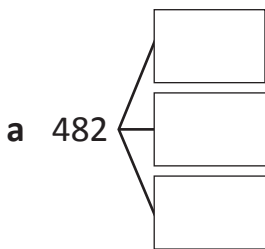


# Subtraction mental strategies – split strategy

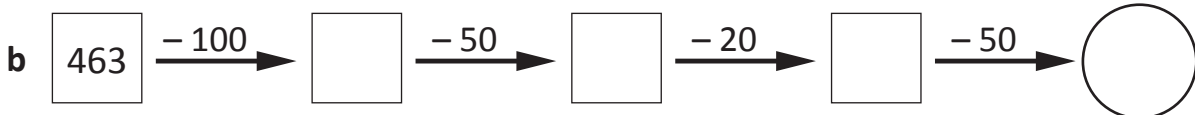
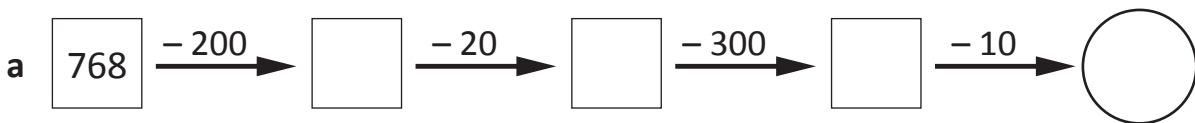
When subtracting large numbers in our heads it can be easier to split the number to be subtracted into parts and work with each part separately.



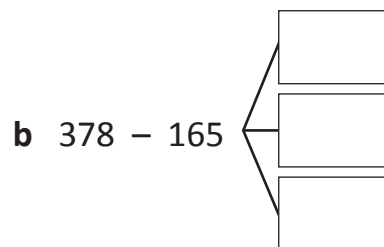
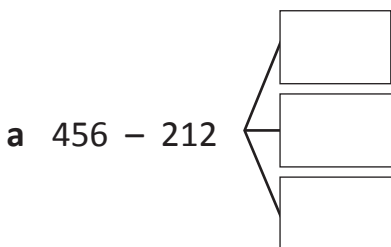
## 1 Practise splitting numbers into hundreds, tens and ones:



## 2 Complete these subtraction trails:



## 3 Use the split strategy with these problems:



$456 - 200 = \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} - 10 = \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} - 2 = \underline{\hspace{2cm}}$

So,  $456 - 212 = \underline{\hspace{2cm}}$

$378 - 100 = \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} - 60 = \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} - 5 = \underline{\hspace{2cm}}$

So,  $378 - 165 = \underline{\hspace{2cm}}$

# Subtraction mental strategies – split strategy

4 Try these subtractions with the split strategy:

a  $479 - 45 =$  \_\_\_\_\_

b  $834 - 21 =$  \_\_\_\_\_

So,  $479 - 45 =$  \_\_\_\_\_

So,  $834 - 21 =$  \_\_\_\_\_

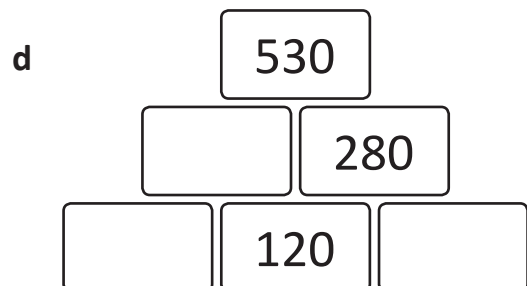
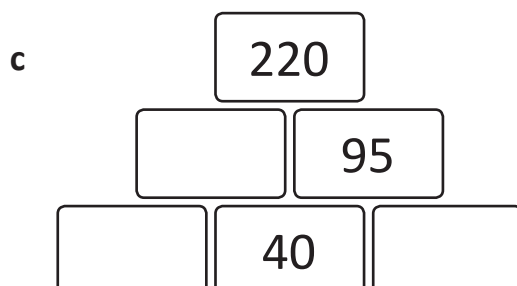
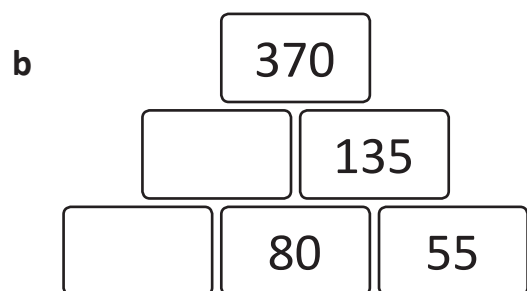
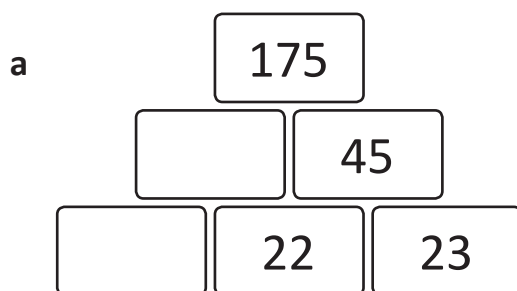
c  $637 - 312 =$  \_\_\_\_\_

d  $567 - 232 =$  \_\_\_\_\_

So,  $637 - 312 =$  \_\_\_\_\_

So,  $567 - 232 =$  \_\_\_\_\_

5 Solve these pyramid puzzles using any strategy you like. The two bricks add to support the number on top. For example in puzzle a,  $22 + 23 = 45$ .



# Subtraction mental strategies – compensation strategy

Sometimes we round one number in the problem to make it easier to do in our heads. Then we adjust our answer to compensate:

$$125 - 49 = \boxed{76}$$

$$125 - 50 \text{ (+ 1)}$$

$$75 \text{ (+ 1)}$$

*I rounded up by 1, which means I subtracted 1 extra so we need to add 1 back.*

I took off 1 extra so I have to add 1 back.



THINK

**1** Round these numbers to the closest ten. Then show how you rounded by subtracting or adding the difference. The first one has been done for you.

a  $78 = 80 - 2$

b  $59 = \underline{\hspace{2cm}}$

c  $62 = \underline{\hspace{2cm}}$

d  $23 = \underline{\hspace{2cm}}$

e  $87 = \underline{\hspace{2cm}}$

f  $99 = \underline{\hspace{2cm}}$

g  $103 = \underline{\hspace{2cm}}$

h  $21 = \underline{\hspace{2cm}}$

i  $88 = \underline{\hspace{2cm}}$

**2** Solve these subtraction problems using compensation. Show your working.

a  $136 - 29 = \boxed{\hspace{2cm}}$

$$136 - 30 \text{ (+ 1)}$$

$$\underline{\hspace{2cm}} \text{ ( )} = \underline{\hspace{2cm}}$$

b  $145 - 38 = \boxed{\hspace{2cm}}$

$$145 - 40 \text{ (+ 2)}$$

$$\underline{\hspace{2cm}} \text{ ( )} = \underline{\hspace{2cm}}$$

c  $156 - 39 = \boxed{\hspace{2cm}}$

$$156 - \underline{\hspace{1cm}} \text{ ( )}$$

$$\underline{\hspace{2cm}} \text{ ( )} = \underline{\hspace{2cm}}$$

d  $184 - 48 = \boxed{\hspace{2cm}}$

$$184 - \underline{\hspace{1cm}} \text{ ( )}$$

$$\underline{\hspace{2cm}} \text{ ( )} = \underline{\hspace{2cm}}$$


Continued on page 25.

# Subtraction mental strategies – compensation strategy


Continued from page 24.

**2** Solve these subtraction problems using compensation. Show your working.

**e**  $145 - 29 = \square$

$145 - 30$  


---

  = 


---

**f**  $176 - 69 = \square$

---


---

  = 


---

**g**  $365 - 42 = \square$

---


---

  = 


---

**h**  $250 - 32 = \square$

---

---

  = 

---

**3** Answer these subtraction problems to solve the riddle below:

**What swirls, loops, and circles on your fingertips, yet never moves?**

**a**  $65 - 29 = F$

**b**  $145 - 32 = U$

**c**  $175 - 61 = E$

**d**  $86 - 59 = O$

**e**  $180 - 48 = I$

**f**  $150 - 32 = N$

**g**  $96 - 42 = R$

**h**  $75 - 33 = G$

**i**  $155 - 49 = Y$

**j**  $166 - 55 = P$

**k**  $185 - 19 = T$

**l**  $370 - 28 = S$

--	--	--	--

106 27 113 54

--	--	--	--	--	--	--	--	--	--	--	--	--	--

36 132 118 42 114 54 111 54 132 118 166 342



Getting ready

This is a game for two players. You will need a copy of this page and 25 counters between you.



copy



What to do

Player 1 covers a number on the grid with a counter and subtracts this number from 100. Player 2 then covers a number on the grid with a counter and subtracts this number from Player 1's answer. Play continues until a player is able to pick one of the remaining uncovered numbers to equal zero. If play continues without anyone reaching zero, the lowest difference wins.

**Sample game:**

Player 1 covers 20 with a counter and states the subtraction fact:  
 $100 - 20 = 80$

Player 2 covers 30 with a counter and states the next subtraction fact:  
 $80 - 30 = 50$

Player 1 then covers 50 and reaches zero first, so wins the round.

25	10	15	20	10
10	50	30	10	25
40	5	40	10	10
10	35	10	15	10
50	10	5	10	45



What to do



Complete these subtraction cross number puzzles:

a

125	−	75	=	
−		−		−
53	−		=	14
=		=		=
	−	36	=	

b

350	−	228	=	
−		−		−
165	−		=	54
=		=		=
	−	117	=	68

# Written methods – 3 digit addition with regrouping

e: 730

	H	T	U
	<sup>1</sup> 5	<sup>1</sup> 3	4
+	1	9	7
	7	3	1

This is the written method for addition when regrouping.

First, estimate the answer to the nearest ten:

$$530 + 200 = 730$$

Add the units:  $4 + 7 = 11$  units.

Think of this as 1 ten and 1 unit.

Write the 1 in the units column and put the 1 in the tens column.

Add the tens:  $3 + 9 + 1 = 13$  tens.

Write 3 in the tens column and 1 in the hundreds column.

Add the hundreds:  $5 + 1 + 1 = 7$  hundreds.

Is our answer reasonable? Yes, because it's close to our estimate.

- 1 Practise estimating answers by rounding to the nearest ten. The first one has been done for you.

	Question	Estimate
a	$682 + 179$	$680 + 180 = 860$
c	$359 + 222$	
e	$587 + 398$	
g	$189 + 108$	

	Question	Estimate
b	$271 + 119$	
d	$378 + 119$	
f	$412 + 98$	
h	$911 + 207$	

- 2 Add these 3 digit numbers using the written method. First, estimate to the nearest ten.

e:

	H	T	U
a	3	5	4
+	2	1	7

e:

	H	T	U
b	6	2	8
+	2	1	3

e:

	H	T	U
c	3	6	4
+	2	2	8

Continued on page 29.

# Written methods – 3 digit addition with regrouping

Continued from page 28.

## 2 Add these 3 digit numbers using the written method:

e:				
	H	T	U	
d	2	6	3	
+	1	3	9	

e:				
	H	T	U	
e	3	4	4	
+	4	5	9	

e:				
	Th	H	T	U
f		2	5	2
+		2	4	9

e:				
	Th	H	T	U
g		2	6	2
+		5	4	9

e:				
	Th	H	T	U
h		6	2	9
+		2	8	9

e:				
	Th	H	T	U
i		3	4	9
+		3	8	7

## 3 Solve these word problems using the written method:

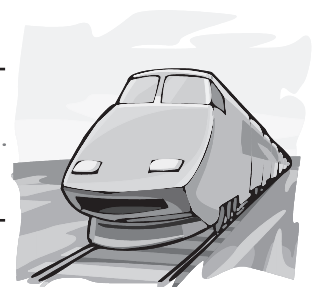
a At a muffin shop, 456 banana choc chip muffins were sold on Saturday and 458 caramel chunk muffins were sold on Sunday. How many muffins were sold that weekend?

	H	T	U
+			



b A train left the station with 389 people on board and then another 678 people got on over the next three stops. How many passengers were on the train altogether?

	Th	H	T	U
+				





# Written methods – 3 digit subtraction with regrouping

- 1 Subtract these 3 digit numbers using the written method. Start by writing your estimate. Estimate to the nearest 10.

e:

	H	T	U
a	6	5	2
-	3	2	7

e:

	H	T	U
b	7	6	1
-	2	2	9

e:

	H	T	U
c	5	9	2
-	4	4	8

You can use a piece of scrap paper to estimate your answer to the nearest 10.



*CHECK*

e:

	H	T	U
d	5	8	2
-	3	4	6

e:

	H	T	U
e	6	5	1
-	4	3	8

e:

	H	T	U
f	9	6	2
-	6	4	9

e:

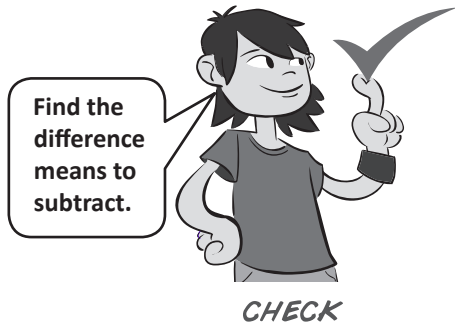
	H	T	U
g	8	8	2
-	6	6	6

e:

	H	T	U
h	7	4	3
-	3	3	9

# Written methods – 3 digit subtraction with regrouping

- 2 This sign shows the distances of towns along a highway from where the sign is. Find the difference between these places.



Showtown	971 km
Roper	893 km
Ringer	692 km
Eagle Bay	595 km
Normanville	567 km

- a What is the distance between Ringer and Normanville?

	H	T	U	
-				
				km

- b What is the distance between Roper and Eagle Bay?

	H	T	U	
-				
				km

- c What is the distance between Showtown and Ringer?

	H	T	U	
-				
				km

- d What is the distance between Roper and Normanville?

	H	T	U	
-				
				km

# Written methods – 4 digit addition

1 Add these 4 digit numbers:

	Th	H	T	U
a	3	3	5	3
+	1	0	2	1
<hr/>				
<hr/>				

	Th	H	T	U
b	2	5	4	6
+	5	4	3	1
<hr/>				
<hr/>				

	Th	H	T	U
c	4	5	2	4
+	2	1	6	4
<hr/>				
<hr/>				

	Th	H	T	U
d	3	6	3	1
+	1	3	5	7
<hr/>				
<hr/>				

	Th	H	T	U
e	1	2	5	2
+	5	3	3	3
<hr/>				
<hr/>				

	Th	H	T	U
f	2	4	3	2
+	5	3	4	6
<hr/>				
<hr/>				

2 Add these 4 digit numbers by regrouping:

	Th	H	T	U
a	6	6	3	8
+	1	2	3	6
<hr/>				
<hr/>				

	Th	H	T	U
b	4	2	4	5
+	2	5	1	7
<hr/>				
<hr/>				

	Th	H	T	U
c	3	4	2	9
+	1	1	3	9
<hr/>				
<hr/>				

3 Add these 4 digit numbers by regrouping:

	Th	H	T	U
a	2	4	6	6
+	2	1	8	7
<hr/>				
<hr/>				

	Th	H	T	U
b	3	1	8	7
+	3	0	5	9
<hr/>				
<hr/>				

	Th	H	T	U
c	3	2	9	6
+	2	1	5	8
<hr/>				
<hr/>				

# Written methods – addition and subtraction challenges

1 Write the numbers which are above each problem in the correct place:

a

4	3	9
---	---	---

	3	6	2
+			7
	7	9	

b

8	3	3	2
---	---	---	---

		6	5
-	4		
	4		3

c

6	5	1
---	---	---

		3	
+	2		3
	8	4	8

d

3	6	7
---	---	---

	5		
-		2	4
	2	4	3

2 Solve these. The same symbol means the same number.

a

		◆	3	◆
+		◆	◆	4
	1	0	8	9

◆ =

b

		6	2	9
+		♥	1	♥
	1	1	4	4

♥ =

c

	★	8	★
-	3	★	2
	1	★	2

★ =

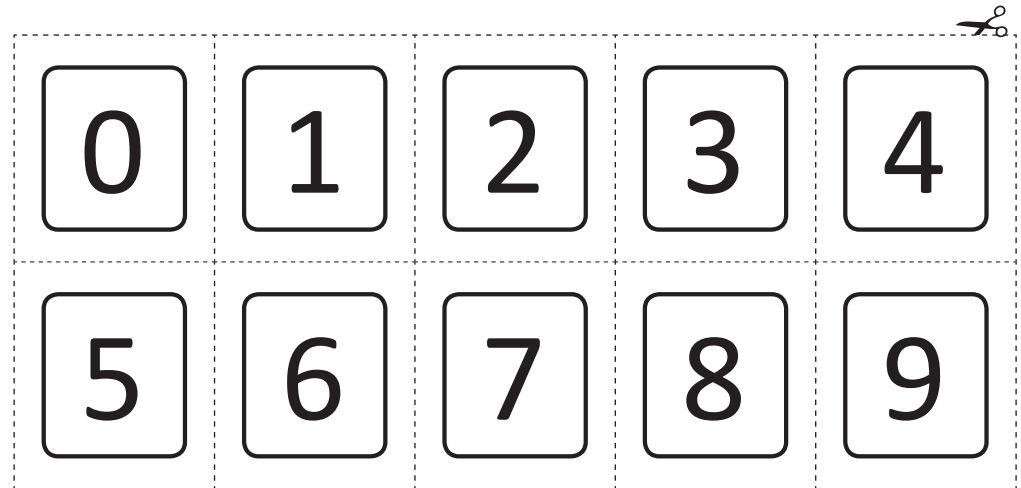
d

	☺	4	1
-	2	3	☺
	3	0	6

☺ =



This is a game for four players. Each player will need to copy and cut out the digit cards below. They will also need the addition frame on this page and a piece of scrap paper to write the answer on.



Choose one person to be the caller.

This person calls out the single digits above, randomly one at a time. The other players place the digits in a box in the frame below, in any order. Players must think carefully about which square to place the digit, in order to create the largest total.

When all the players have filled in the frame, they complete the addition.

The biggest answer scores a point. Play the best out of 5.

	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
+	<input type="text"/>	<input type="text"/>	<input type="text"/>



Getting ready

This is a game for two players. Each player will need to copy and cut out the digit cards. To play you need to share the number grid on this page. Each player should have a piece of scrap paper to write the answer on and three counters in the same colour, but different to the other player.



copy

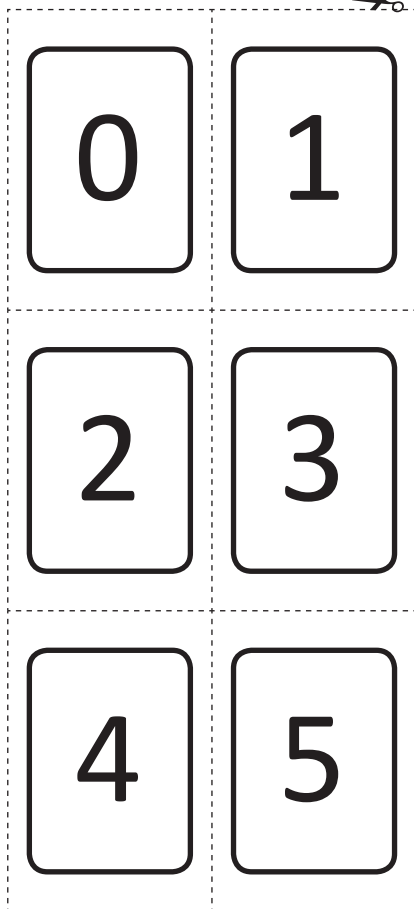


What to do

The aim of the game is to claim any 3 numbers on the grid below. Each player lays their digit cards upside down in front of them. They then turn over four of the cards to form two 2 digit numbers and find the difference.

If the answer is on the grid, they claim it by placing a counter on the number. If it's not, they can have a chance at rearranging the four cards they turned over, to create a number on the grid. If they can't do this, it's the next player's turn.

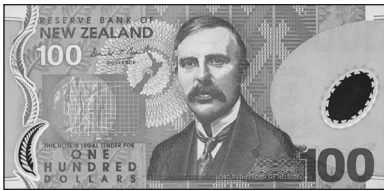
Digit cards



14	42	22	12
31	13	5	9
18	31	29	11
27	28	6	17

# Money – coin combinations

It is important that you are able to recognise these notes and coins so that you are able to spend and save your money wisely.



1 Calculate the total of each group of cash:

a

b

c

d

# Money – coin combinations

**2** Make up each amount below using notes and coins in two different ways:

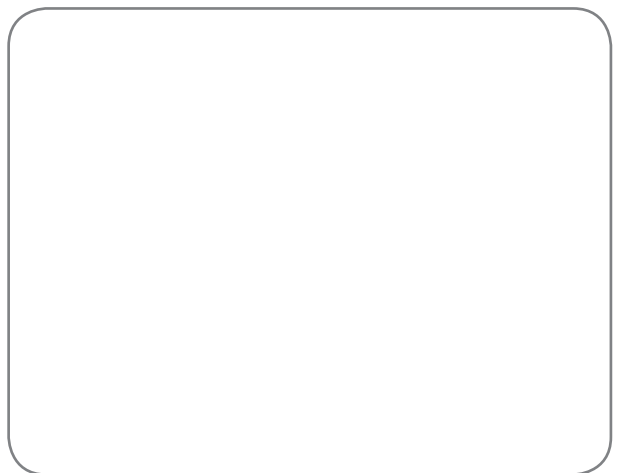
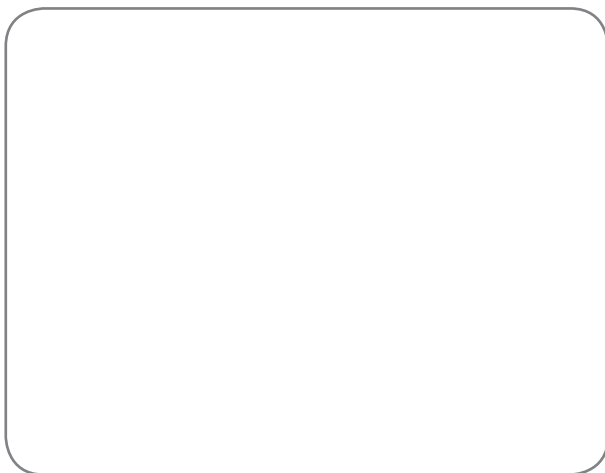
**a** Show \$20:



.....  
**b** Show \$50:



.....  
**c** Show \$100:





# Money – finding change

When you buy something and you don't have the exact combination of notes and coins, you can pay with a larger amount and get the difference back. This is called change.

If I paid for these flowers with \$20, my change would be \$8.



**1** Find the change for each amount below. You could bridge to the next dollar and count on or use a written subtraction. Show all your workings:

**a** I had \$100. I spent \$68.

Change =

**b** I had \$50. I spent \$22.

Change =

**c** I had \$20. I spent \$16.50.

Change =

**d** I had \$120. I spent \$60.

Change =

**e** I had \$100. I spent \$75.

Change =

**f** I had \$50. I spent \$42.

Change =

# Money – using money

When you plan a party, you usually buy things such as food, drink and party favours. It's a good idea to set a budget before you go shopping so that you don't spend too much.



**1 Here is a price list of party items:**

Food	
Sausage rolls	\$3.20
Pizza slices	\$8.90
Burgers	\$7.60

Drink	
Orange juice	\$2.70
Lemonade	\$3.10
Cola	\$3.20

Party favours	
10 party hats	\$3.80
10 balloons	\$1.90
4 game prizes	\$5.60

a Which two items of food and drink could I buy for less than \$10? Show the change.

Change =

b Maxine bought a type of party food. If her change was \$2.40 and she paid with a \$10 note, what did she buy?

c Look at the price lists for the party items at the top of this page. Use a calculator to add up the total amount on Heidi's shopping list.

d Heidi's budget is \$50. Suggest something to take off the total.

Heidi's shopping list:	
2 packs of sausage rolls ..	_____
4 packs of pizza slices .....	_____
10 party hats .....	_____
20 balloons .....	_____
Orange juice .....	_____
Lemonade.....	_____
<b>Total</b>	_____



Getting ready

This is a game for three players. You will need a die and each player needs a copy of page 41 to record the change.

You may wish to make extra copies of page 41 so you can play again.



What to do

The aim of the game is to end up with the most amount of money at the end of each round.

Roll the die to find what you are calculating change for. Record the number you rolled and the change in the table. Take turns. When you have filled in the table for each round, calculate the total amount of change. The most change scores 5 points. Play for three rounds to decide the overall winner.

Die number	Amount you have	Amount you spend
	\$20	It's your friend's birthday, you spend \$5.20 on a card.
	\$15	You spend \$7.50 on school supplies.
	\$5	You buy some lollies for \$3.90.
	\$5	You spend \$4.20 downloading songs from the internet.
	\$10	A trip to the movies costs \$7.80.
	\$20	You are fined \$17.80 for littering.



Round 1	
Number rolled	Change
<b>Total</b>	

Round 2	
Number rolled	Change
<b>Total</b>	

Round 3	
Number rolled	Change
<b>Total</b>	