

GRADE 4

Addition

WORKSHEETS

Mathletics

love learning.

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:

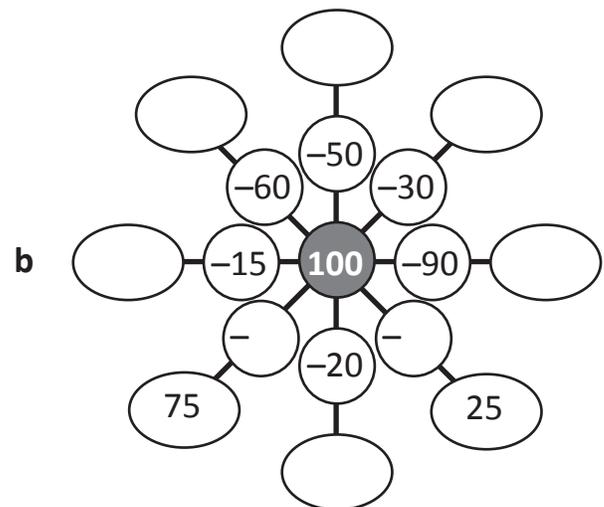
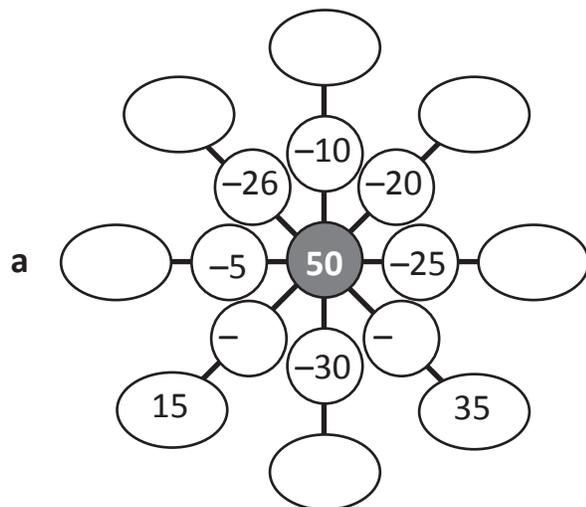
a Complements to 20. There are three to find. The first one has been done for you.

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 center 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

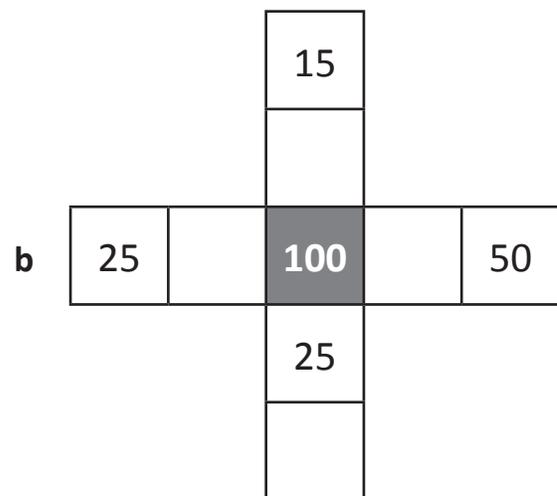
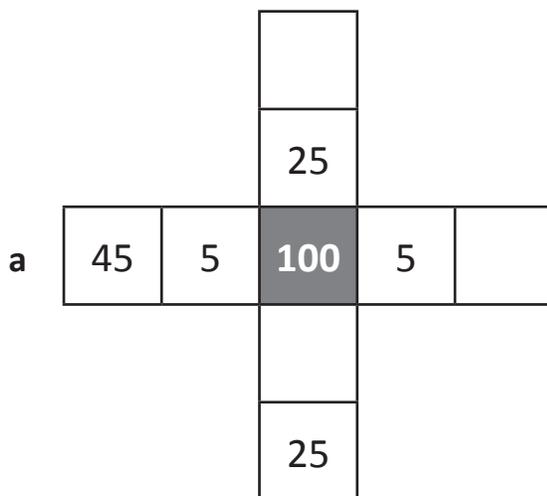
e 62 + = 100

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.

$$\begin{aligned} \text{See: } & 6 + 7 \\ \text{Think: } & \text{double } 6 + 1 \end{aligned}$$

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 =

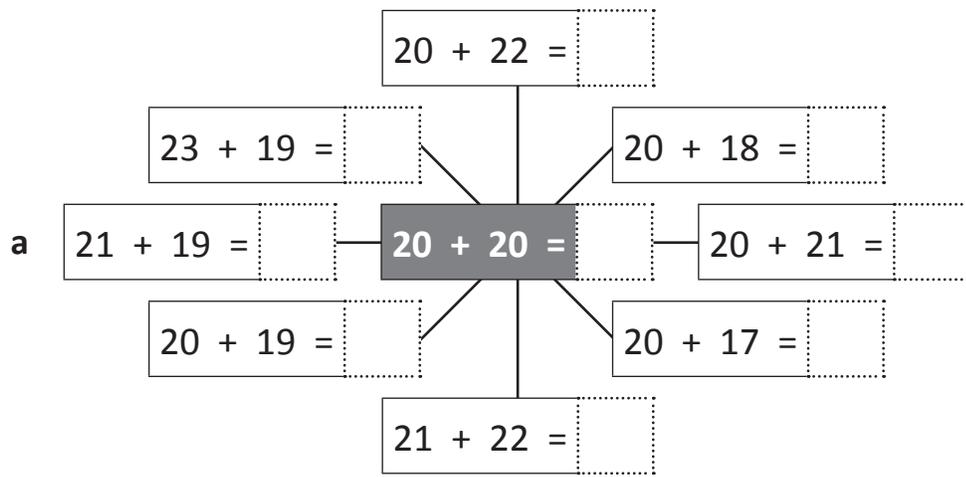
double 7 - 1 =

double 8 - 1 =

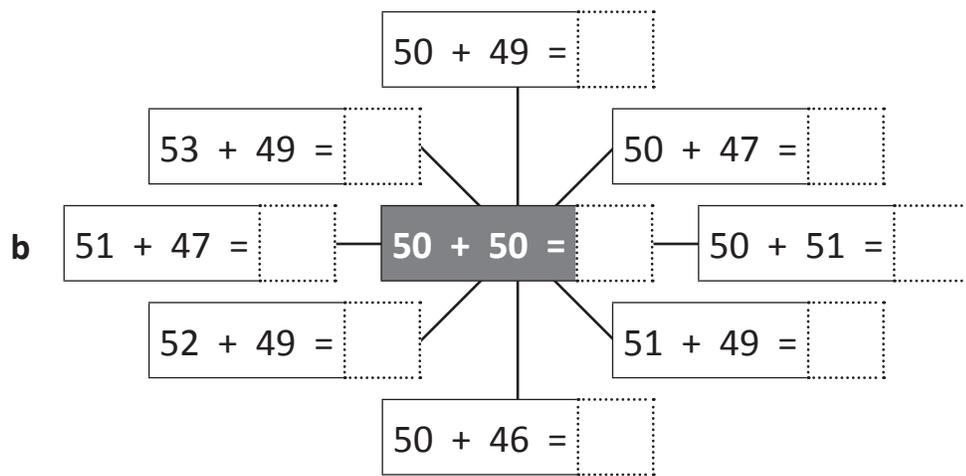
double 9 - 1 =

Addition mental strategies – doubles and near doubles

- 2 Complete each near double diagram. Start with the double in the center 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 $30 + 32$

.....

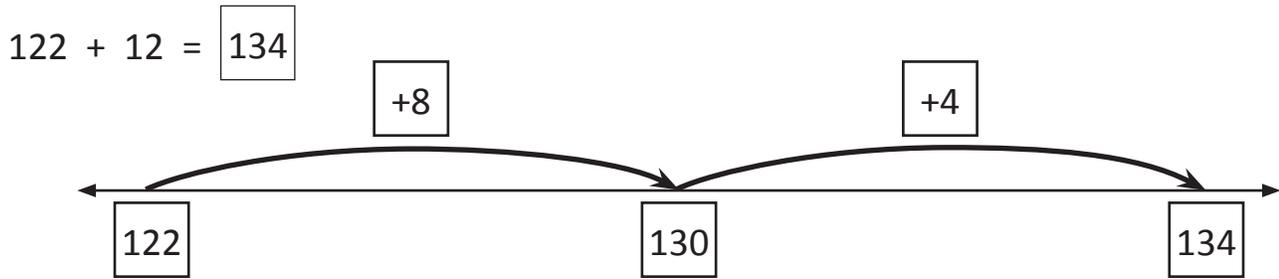
b $25 + 23$

.....

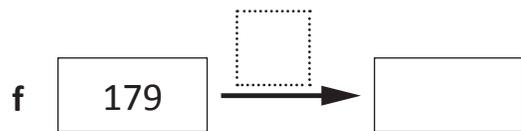
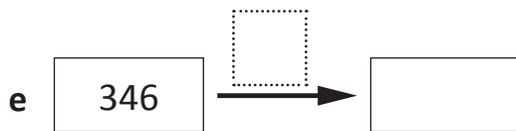
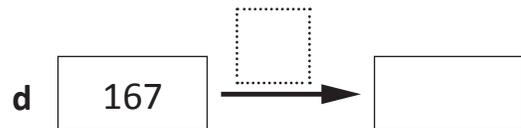
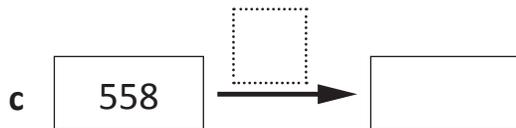
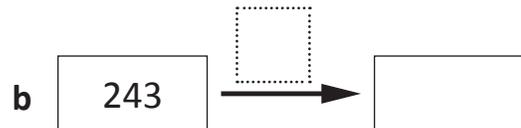
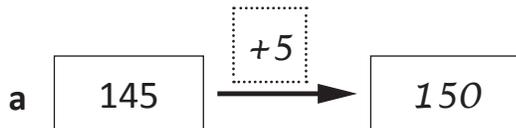
c $100 + 97$

Addition mental strategies – bridge to ten

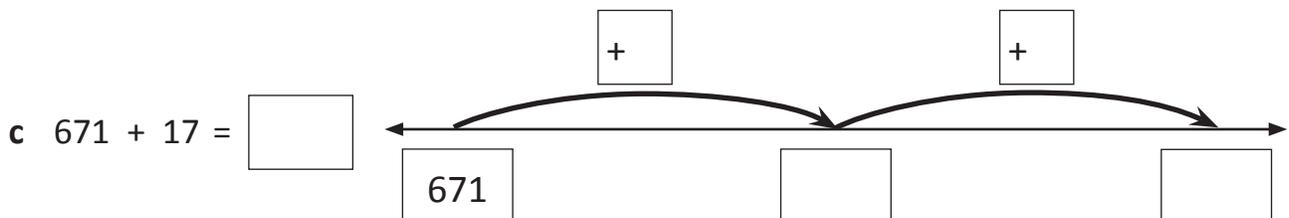
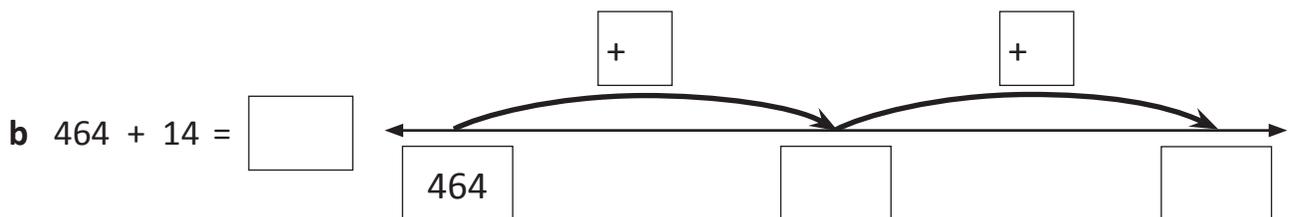
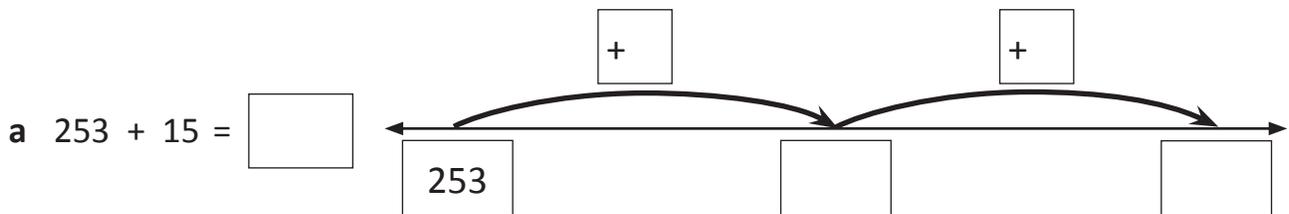
Bridge to ten means we count up to the next 10 and then add what is left.



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



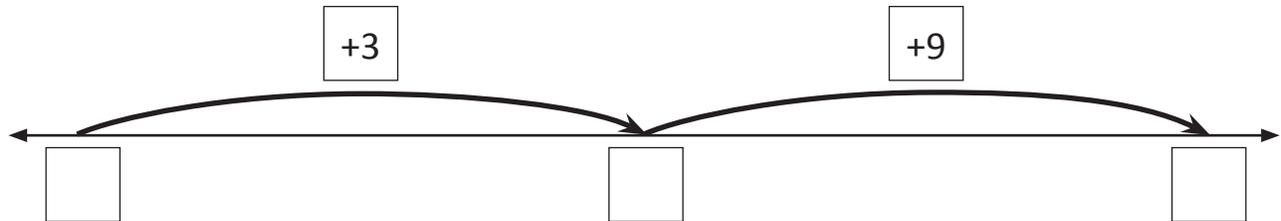
2 Use the number lines to bridge to ten:



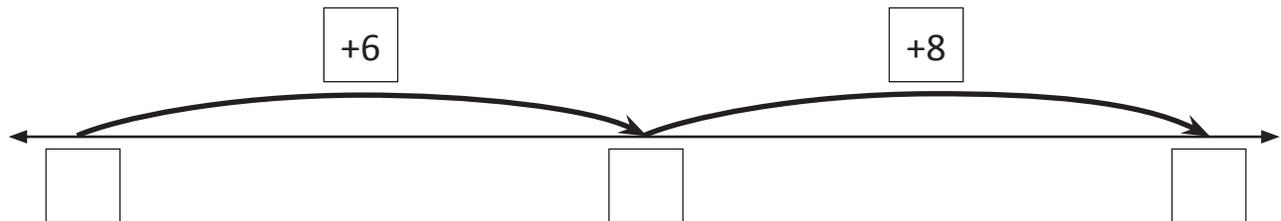
Addition mental strategies – bridge to ten

3 Write a problem that matches the number line:

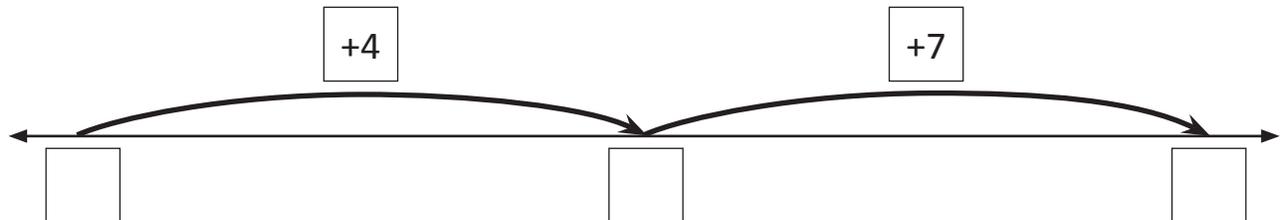
a + =



b + =



c + =



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

a

+	356	78	586	287	385	984
12						

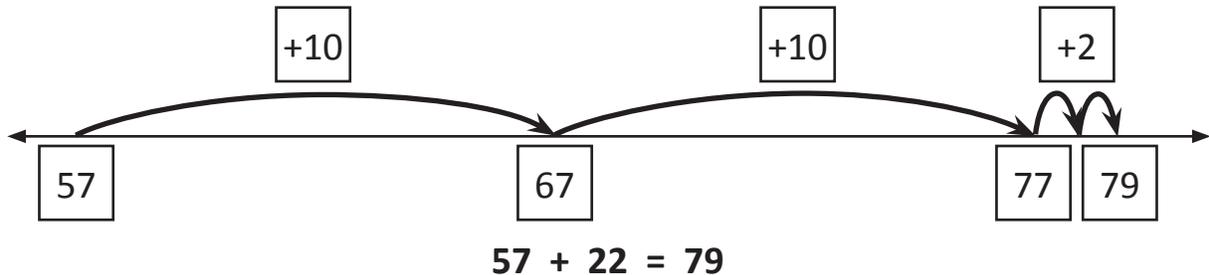
b

+	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 ones.



- 1 Practice jumping in tens along the arrows:

a

b

c

- 2 Use the jump strategy to add these:

a $78 + 52 = \square$

b $115 + 44 = \square$

c $185 + 63 = \square$

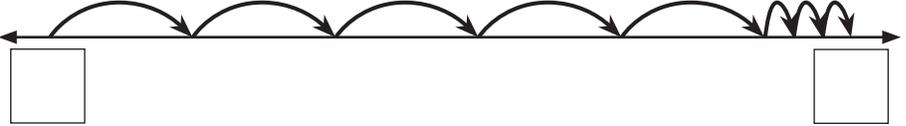
Addition mental strategies – jump strategy

- 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.

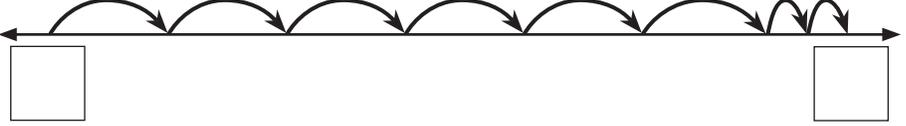
$$187 + 54$$

$$179 + 62$$

$$78 + 53$$

a $\square + \square = \square$ 

b $\square + \square = \square$ 

c $\square + \square = \square$ 

- 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?

$$\square + \square = \square$$

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

$$\square + \square = \square$$

- c How many chocolate cupcakes were sold over the weekend?

$$\square + \square = \square$$

Addition mental strategies – split strategy

Here is another way to use the split strategy.

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

1 Use this way to add these:

$$\begin{aligned}
 \text{a } 63 + 37 &= (\square + \square) + (\square + \square) \\
 &\quad \text{tens} \quad \text{tens} \quad \text{ones} \quad \text{ones} \\
 &= \square + \square \\
 &\quad \text{tens} \quad \text{ones} \\
 &= \square
 \end{aligned}$$

$$\begin{aligned}
 \text{b } 88 + 23 &= (\square + \square) + (\square + \square) \\
 &\quad \text{tens} \quad \text{tens} \quad \text{ones} \quad \text{ones} \\
 &= \square + \square \\
 &\quad \text{tens} \quad \text{ones} \\
 &= \square
 \end{aligned}$$

$$\begin{aligned}
 \text{c } 56 + 15 &= (\square + \square) + (\square + \square) \\
 &\quad \text{tens} \quad \text{tens} \quad \text{ones} \quad \text{ones} \\
 &= \square + \square \\
 &\quad \text{tens} \quad \text{ones} \\
 &= \square
 \end{aligned}$$

$$\begin{aligned}
 \text{d } 65 + 28 &= (\square + \square) + (\square + \square) \\
 &\quad \text{tens} \quad \text{tens} \quad \text{ones} \quad \text{ones} \\
 &= \square + \square \\
 &\quad \text{tens} \quad \text{ones} \\
 &= \square
 \end{aligned}$$

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



REMEMBER

2 Use the split strategy to complete this table:

+	23	78	63	55	36
45					
39					

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:

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

1 Practice rounding:

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

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

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

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

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

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

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

a $32 + 29 = \boxed{}$
 $32 + 30$ \bigcirc
 --- $\bigcirc = \boxed{}$

b $55 + 38 = \boxed{}$
 $55 + 40$ \bigcirc
 --- $\bigcirc = \boxed{}$

c $66 + 19 = \boxed{}$
 $66 + \text{---}$ \bigcirc
 --- $\bigcirc = \boxed{}$

d $22 + 39 = \boxed{}$
 $22 + \text{---}$ \bigcirc
 --- $\bigcirc = \boxed{}$

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 forward as it is backward?

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

Written methods – 3 digit addition with regrouping

e: 730

	H	T	O
	¹ 5	¹ 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 ones: $4 + 7 = 11$ ones.

Think of this as 1 ten and 1 one.

Write the 1 in the ones 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 Practice 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	O
a	3	5	4
+	2	1	7

e:

	H	T	O
b	6	2	8
+	2	1	3

e:

	H	T	O
c	3	6	4
+	2	2	8

Continued on page 13.

Written methods – 3 digit addition with regrouping

Continued from page 12.

2 Add these 3 digit numbers using the written method:

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

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

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

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

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

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

3 Solve these word problems using the written method:

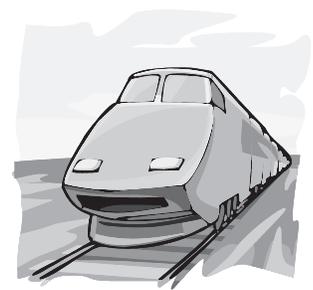
- a At a muffin shop, 456 banana choc chip muffins were sold on Saturday and 458 caramel chunk muffins were sold on Sunday. How many muffins were sold that weekend?

	H	T	O
	+		



- 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	O
	+			



Written methods – 4 digit addition

1 Add these 4 digit numbers:

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

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

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

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

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

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

2 Add these 4 digit numbers by regrouping:

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

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

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

3 Add these 4 digit numbers by regrouping:

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

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

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

Written methods – addition

	Th	H	T	O
	1	¹ 2	¹ 4	8
+		4	5	7
	1	7	0	5

We can add using a written strategy.

First we estimate what the answer will be: $1,248 + 457 =$ is around 1,700.

We start by adding the ones: $8 + 7 = 15$ ones. We can rename this as 1 ten and 5 ones. We put the 5 ones in the ones column and carry the ten to the tens column.

4 tens add 5 tens is 9 tens plus the carried 10 makes 10 tens. We rename this as 1 hundred and 0 tens.

We put the zero in the tens column and carry the 1 hundred.

2 hundreds add 4 hundreds makes 6 hundreds plus the carried hundred makes 7 hundreds. We put the 7 in the hundreds column.

There is 1 thousand in the thousand column so we simply put the 1 in the thousand column at the bottom.

1 Solve these addition problems. First estimate the answer:

e:

a
$$\begin{array}{r} 697 \\ + 56 \\ \hline \end{array}$$

e:

b
$$\begin{array}{r} 844 \\ + 93 \\ \hline \end{array}$$

e:

c
$$\begin{array}{r} 532 \\ + 498 \\ \hline \end{array}$$

e:

d
$$\begin{array}{r} 6192 \\ + 330 \\ \hline \end{array}$$

e:

e
$$\begin{array}{r} 6640 \\ + 4834 \\ \hline \end{array}$$

e:

f
$$\begin{array}{r} 9971 \\ + 1029 \\ \hline \end{array}$$

e:

g
$$\begin{array}{r} 63300 \\ + 12990 \\ \hline \end{array}$$

e:

h
$$\begin{array}{r} 45529 \\ + 6753 \\ \hline \end{array}$$

2 Solve these problems using the written method:

a Last month 1,550 fans supported the local football tournament. This month there were 568 more fans. How many fans supported the local tournament this month?

b Over the past 18 months, Chan spent lots of money on computer games. Last year, he spent \$1,928 and this year, he has already spent \$1,562. How much has he paid for computer games so far?

Written methods – addition

$$\begin{array}{r}
 \begin{array}{|c|c|c|c|}
 \hline
 5 & 5 & 6 & 2 \\
 \hline
 + & & 3 & 3 & 8 \\
 \hline
 & & & 1 & 0 \\
 \hline
 & & & 9 & 0 \\
 \hline
 & & 8 & 0 & 0 \\
 \hline
 & 5 & 0 & 0 & 0 \\
 \hline
 5 & 9 & 0 & 0 & \\
 \hline
 \end{array}
 \end{array}$$

Another method is to add each place value separately and then add these answers together.

3 Solve these addition problems using a written strategy of your choice.

e:

a

$$\begin{array}{r}
 4 \ 4 \ 2 \ 6 \\
 + \quad 3 \ 4 \ 5 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

b

$$\begin{array}{r}
 3 \ 1 \ 1 \ 9 \\
 + \quad 5 \ 6 \ 3 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

c

$$\begin{array}{r}
 7 \ 7 \ 1 \ 3 \\
 + \quad 8 \ 4 \ 7 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

d

$$\begin{array}{r}
 8 \ 9 \ 9 \ 9 \\
 + \quad 1 \ 0 \ 3 \ 4 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

e

$$\begin{array}{r}
 5 \ 6 \ 1 \ 2 \\
 + \quad 2 \ 3 \ 2 \ 8 \\
 \hline
 \\
 \hline
 \end{array}$$

e:

f

$$\begin{array}{r}
 8 \ 3 \ 2 \ 0 \\
 + \quad 3 \ 6 \ 8 \ 9 \\
 \hline
 \\
 \hline
 \end{array}$$

4 Choose a written strategy and solve the following:

a 6,009 people are in the stands at a football game and 648 people are on the sidelines. How many people are there altogether?

b 1,382 people arrived at the pop concert by car and 4,553 arrived by train. How many people attended the concert?

Written methods – addition

	H	T	O
	¹ 2	¹ 3	5
+	4	8	9
	7	2	4

How do we add using a written strategy?

First we estimate: $235 + 500 = 735$. Our answer will be around 735.

We start with the ones. $5 + 9$ is 14 ones. We rename this as 1 ten and 4 ones.

We put the 4 in the ones column and carry the 1 to the tens column.

3 tens plus 8 tens plus the carried ten is 12 tens.

We rename this as 1 hundred and 2 tens.

We put the 2 in the tens column and carry the 1 to the hundreds column.

We add the hundreds. We put 7 in the hundreds column.

Finally we check against our estimate – do they match?

5 Solve these addition problems. First estimate the answers:

e:

a

	H	T	O
	5	4	1
+	3	1	3

e:

b

	H	T	O
	1	7	3
+	5	9	2

e:

c

	H	T	O
	3	8	4
+	2	1	3

e:

d

	H	T	O
	2	6	8
+	4	9	3

e:

e

	Th	H	T	O
	2	2	1	7
+	3	4	0	8

e:

f

	Th	H	T	O
	4	5	1	6
+	1	3	4	3

e:

g

	Th	H	T	O
	5	3	8	9
+	1	2	7	4

e:

h

	Th	H	T	O
	3	2	8	1
+	1	4	2	8

6 Use these cards to make 5 different addition problems using 2 and 3 digit numbers. Show your working out:

2	3	4	5	6	7	8	9	=	+
---	---	---	---	---	---	---	---	---	---

Written methods – addition

	H	T	O
	5	6	2
+	1	4	5
			7
	1	0	0
	6	0	0
	7	0	7

We can also add each place value separately and then add these together:

$$2 + 5 = 7$$

$$60 + 40 = 100$$

$$500 + 100 = 600$$

$$7 + 100 + 600 = 707$$

7 Solve these addition problems using a written strategy of your choice:

e:

a

	H	T	O
	3	8	5
+	4	2	3

e:

b

	H	T	O
	4	1	2
+	2	3	8

e:

c

	H	T	O
	9	2	2
+		6	9

e:

d

	H	T	O
	1	8	8
+	4	1	4

e:

e

	H	T	O
	7	2	4
+		2	9

e:

f

	H	T	O
		3	6
+	1	4	4

Guess, check, and improve will help me here.

8 Can you work out what the missing numbers should be? Remember, there may have been some regrouping!

a

	H	T	O
	4		5
+		2	
	8	5	7

b

	H	T	O
	¹ 1	¹ 5	9
+	2	4	
		0	6

c

	H	T	O
	5	¹ 6	7
+			9
	9	9	



Applying strategies – addition

- 1 Show 2 different ways of solving this problem.

$$249 + 142$$

- 2 Use a mental strategy of your choice to complete these magic squares. Each row and column adds to give the number at the top.

250		
96	87	
	92	36

330		
		58
45		110
102		

- 3 Complete these equations so that each answer is between 351 and 400. You may not use zeros in any part of the sum:

a _____ + _____ = _____

b _____ + _____ = _____

c _____ - _____ = _____

d _____ - _____ = _____

Applying strategies – addition

- 4 It is important to eat healthy foods that are low in fat and sugar. This table shows nutritional information of some common foods:

	 Bowl of coco flakes	 Bowl of wheat puffs	 Pizza slice	 Tuna sandwich	 Soda	 Fruit juice	 Milkshake
Total fat	1.2 g	0.7 g	33.8 g	9.3 g	0 g	0 g	12 g
Sugars	28.3 g	1.6 g	12.3 g	5.4 g	30 g	4.9 g	61 g

- a How healthy are the children listed in the table below? Calculate the total amount of fat and sugar consumed by each child for breakfast and recess:

	Breakfast	Lunch	Total fat	Total sugar
Sam 	Bowl of coco flakes	Pizza slice and soda		
Nate 	Bowl of wheat puffs	Pizza slice and a milkshake		
Wil 	Bowl of coco flakes	Tuna sandwich and soda		
Trey 	Bowl of wheat puffs	Tuna sandwich and fruit juice		

- b Draw a smiley face next to the healthiest child.

- 5 Now it's your turn to look at your breakfast choices. Use the packaging or a calorie counter to find the sugar and fat contents of your daily breakfasts. Track your breakfasts over a week:

Day	Breakfast	Total fat	Total sugar

How would you rate your breakfast choices?



Getting ready

Work out the answers to these sums in your head. Each answer matches a letter in the list on the right. Write the letters next to your answers, then unjumble the letters to find the name of a city.



What to do

Try competing with a friend to be the fastest to do all of the sums and work out the names of the three cities.

Code
A = 922
B = 754
C = 141
D = 582
E = 927
F = 735
G = 222
H = 358
I = 780
J = 989
K = 481
L = 909
M = 398
N = 856
O = 975
P = 667
Q = 555
R = 412
S = 509
T = 538
U = 656
V = 1,110
W = 1,150
X = 716
Y = 827
Z = 1,907

a $701 + 126 =$ Letter _____

$501 + 81 =$ Letter _____

$810 + 117 =$ Letter _____

$304 + 205 =$ Letter _____

$810 + 17 =$ Letter _____

$230 + 626 =$ Letter _____

The city is _____

b $293 + 216 =$ Letter _____

$811 + 111 =$ Letter _____

$650 + 130 =$ Letter _____

$610 + 57 =$ Letter _____

$380 + 32 =$ Letter _____

The city is _____

c $816 + 40 =$ Letter _____

$913 + 62 =$ Letter _____

$751 + 105 =$ Letter _____

$830 + 79 =$ Letter _____

$882 + 93 =$ Letter _____

$471 + 111 =$ Letter _____

The city is _____