Mathletics

Series G Student

Addition and Subtraction

My name

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Series G – Addition and Subtraction

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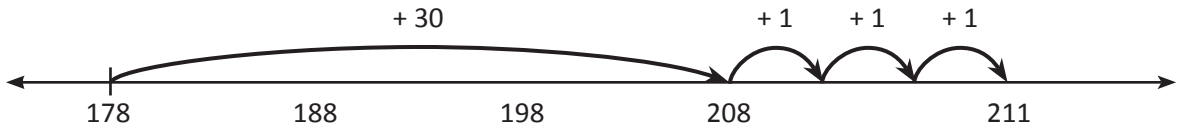
Mental strategies – jump strategy review

When we add we can use the jump strategy to help us. Look at how we do this with 178 + 33.

1 First we jump up by the tens.

2 Then we jump up by the ones.



178 + 33 = 211

1 **Demonstrate the jump strategy by showing how to add a 3-digit number and a 2-digit number.**

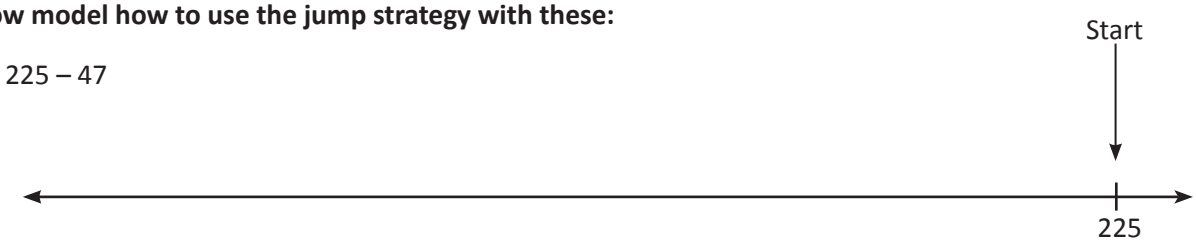
..... + ... = ...

2 **Demonstrate the jump strategy by showing how to subtract a 2-digit number from a 3-digit number:**

..... – ..... = ...

3 **Now model how to use the jump strategy with these:**

a 225 – 47



..... – ..... = ...

b 521 + 52

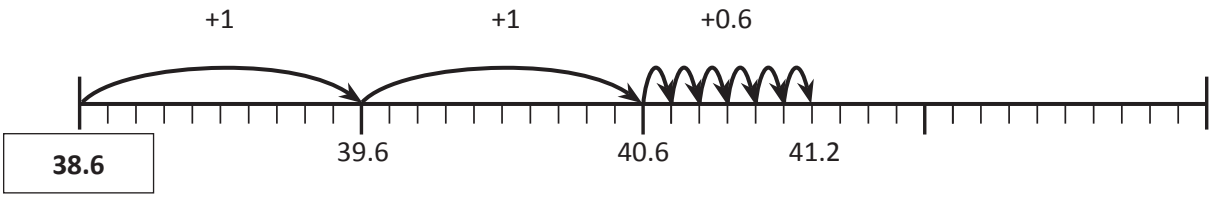
..... + ... = ...

Mental strategies – jump strategy with decimals

The jump strategy is also useful when adding decimals. Look at how we do this with 38.6 + 2.6:

1 First we jump up by the whole numbers.

2 Then we jump up by the tenths.



38.6 + 2.6 = 41.2

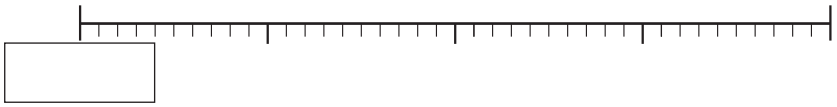
1 **Use the jump strategy to add the decimals:**

a 35.4 + 3.1

..... + ... = ...

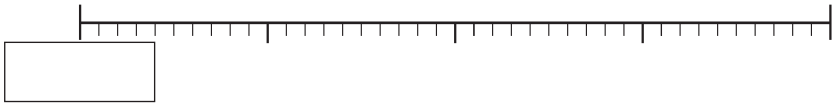
b 84.3 + 1.8

..... + ... = ...



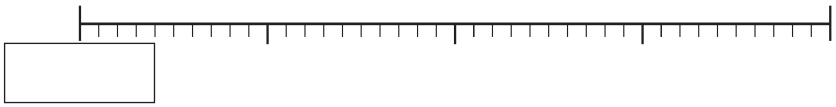
c 17.6 + 1.9

..... + ... = ...



2 **Use the jump strategy to answer the following:**

a You win a spitball competition, beating your nearest competitor, 'Spitball Steve' by 1.6 m. Your mother would be so proud. If Spitball Steve spat 4.4 m, how far did you shoot?



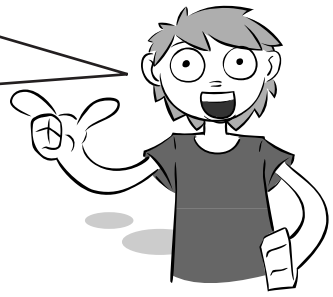
b After weeks of practice Spitball Steve perfects his technique and beats your previous winning shot by 1.1 m. How far does he spit?

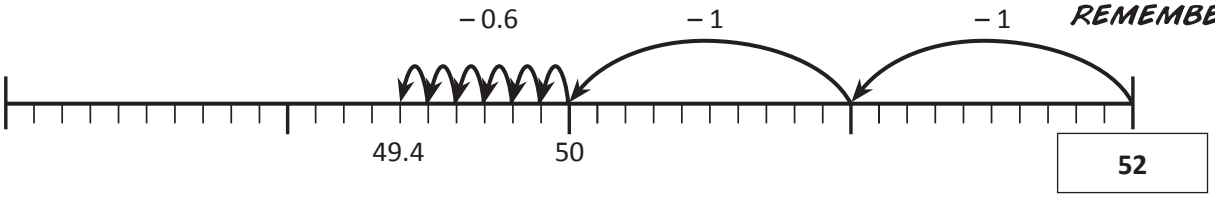
Mental strategies – jump strategy with decimals

We can also subtract decimals using the jump strategy.
Look at how we do this with 52 – 2.6

1 First we jump back by the whole numbers.

2 Then we jump back by the tenths.





3 **Use the jump strategy to subtract these decimals. Break up the second number in your head:**

a 36 – 3.3

..... – ..... = ...

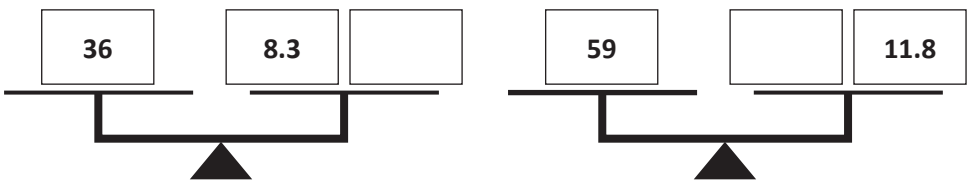
b 51 – 2.9

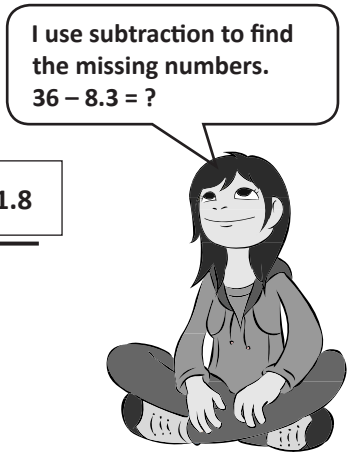
..... – ..... = ...

c 68 – 3.9

..... – ..... = ...

4 **Work out what the missing number is on each set of balanced scales. Use the jump strategy.**





Mental strategies – split strategy review

Follow these steps when using the split strategy for addition or subtraction:

1 Split the second number into its different place values.

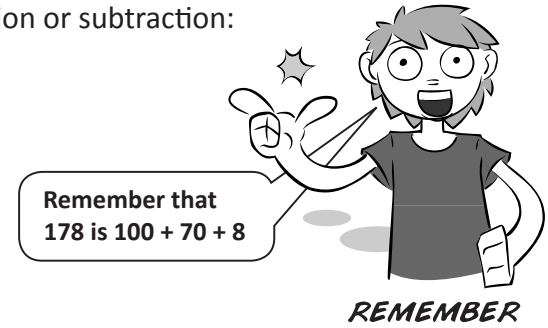
2 Add or subtract each part in turn.

347 + 178 → 347 + 100 = 447

447 + 70 = 517

517 + 8 = 525

347 + 178 = 525



1 **Solve these problems using the split strategy:**

a 478 + 169 = ☐

b 507 + 216 = ☐

c 345 + 236 = ☐

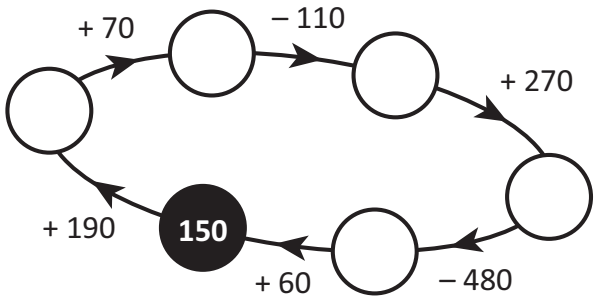
2 **Solve these problems using the split strategy:**

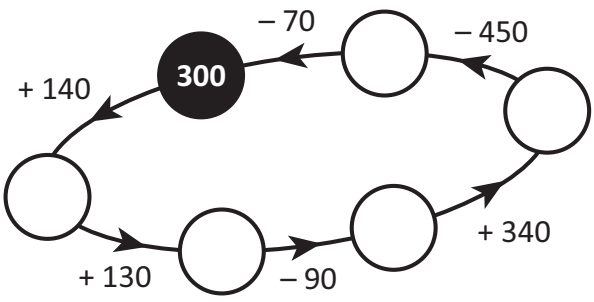
a 421 – 153 = ☐

b 632 – 138 = ☐

c 954 – 621 = ☐

3 **Add or subtract around each orbit. Write your answers on each planet. Start at the shaded circle and follow the direction of the arrows!**





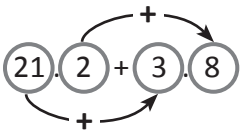
Mental strategies – split strategy with decimals

Sometimes it is easier to split both numbers. Look at how we do this with 21.2 + 3.8

1 We split the numbers into whole numbers and decimals.

2 We then rearrange the problem, adding the whole numbers and decimals separately.

3 We add the 2 answers.



= (21 + 3) + (0.2 + 0.8)
= 24 + 1
= 25

1 **When adding decimals, it is handy if you are able to quickly identify pairs that add together to give a whole number. In each grid below, look for 4 pairs that add to give a whole number and colour in the squares. Pairs are next to each other vertically, horizontally or diagonally.**

a

1.7	1.5	3.8	3.1
1.3	1.2	3.2	3.6
6.3	6.4	5.1	5.5
6.2	6.6	5.6	2.5

b

1.4	0.3	0.7	0.9
2.4	2.6	1.2	3.2
1.5	1.7	3.5	1.5
1.6	1.2	1.8	1.1

c

1.6	1.1	2.3	1.5
1.2	1.4	1.5	2.7
1.7	2.5	2.9	3.3
2.1	1.8	3.2	3.5

2 **Solve these problems using the split strategy. Make notes as you go:**

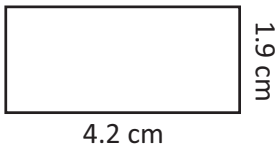
a 32.3 + 2.3 = ☐

b 21.7 + 3.8 = ☐

c 46.2 + 7.1 = ☐

3 **Find the perimeter of each shape. Shapes are not drawn to scale. Use the split strategy to help you:**

a



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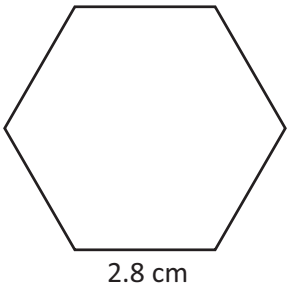
b



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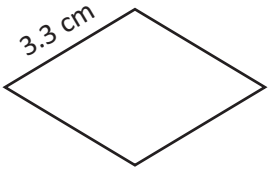
c



P:

Mental strategies – split strategy with decimals

We can use the same process to subtract decimals:

1 We split the numbers into whole numbers and decimals.

2 We then rearrange the problem, subtracting the whole numbers and decimals separately.

3 We add the 2 answers.

$31.4 - 2.3 = (31 - 2) + (0.4 - 0.3)$
$= 29 + 0.1$
$= 29.1$

4 **Solve these problems using the split strategy. Make notes as you go:**

a 46.8 – 9.3 = ☐

b 55.8 – 4.2 = ☐

c 33.2 + 13.1 = ☐

5 **Use the split strategy to solve these money problems:**

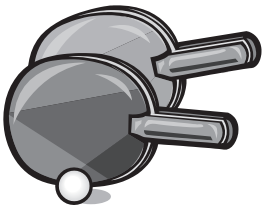
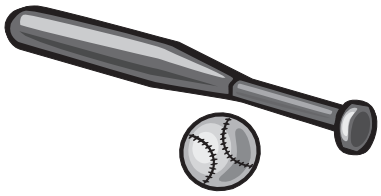


Table tennis £28.60



Baseball £42.15

Boxing £135.95

a The table tennis set costs £34.90 at the store down the road. If Gillian buys it here for £28.60, how much does she save?

b Sanjeev saved £55.50 to buy the baseball kit. How much of his savings remain after buying the kit?

c If she had a voucher for a £8.75 discount, how much did Katya pay for the boxing gloves?

Mental strategies – compensation strategy review

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

235 + 68 = 303

235 + 70 (– 2)

305 (– 2) = 303

We rounded up by 2, which means we added 2 too many so we subtract 2.

325 + 41 = 366

325 + 40 (+ 1)

365 (+ 1) = 366

We rounded down by 1, which means we subtracted 1 too few, so we add 1 back.

1 **Use the steps of the compensation strategy to complete these additions.**

a 424 + 68 = ☐

424 + 70 ◯

_____ ◯ = _____

b 234 + 18 = ☐

234 + 20 ◯

_____ ◯ = _____

c 564 + 132 = ☐

564 + 130 ◯

_____ ◯ = _____

d 214 + 141 = ☐

214 + 140 ◯

_____ ◯ = _____

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

270 – 59 = 211

270 – 60 (+ 1)

210 (+ 1) = 211

We rounded up by 1 which means we subtracted 1 extra, so we need to pay it back.

350 + 73 = 423

350 + 70 (+ 3)

420 (+ 3) = 423

We rounded down by 3 which means we need to add 3 more.

2 **Use the steps of the compensation strategy to complete these subtractions.**

a 725 – 39 = ☐

725 – 40 ◯

_____ ◯ = _____

b 373 – 49 = ☐

373 – 50 ◯

_____ ◯ = _____

c 285 – 198 = ☐

285 – 200 ◯

_____ ◯ = _____

d 455 – 43 = ☐

455 – 40 ◯

_____ ◯ = _____

Mental strategies – compensation strategy with decimals

Follow these steps for the compensation strategy when adding decimals:

1 Round the number closest to a whole number.

2 Compensate for rounding:

31.4 + 5.8 → 31.4 + 6 *I rounded up by 0.2,*
= 37.4 – 0.2 *which means I*
= 37.2 *added extra so I need to subtract 0.2.*

51.4 + 8.3 → 51.4 + 8 *I rounded down by 0.3,*
= 59.4 + 0.3 *which means I did not add enough so I need to add 0.3.*
= 59.7

1 **Use the steps of the compensation strategy to complete these decimal additions:**

a 9.5 + 2.8 = ☐

9.5 + 3 ◯

_____ ◯ = _____

b 6.4 + 3.1 = ☐

6.4 + 3 ◯

_____ ◯ = _____

c 8.3 + 1.8 = ☐

8.3 + 2 ◯

_____ ◯ = _____

d 2.4 + 0.9 = ☐

2.4 + 1 ◯

_____ ◯ = _____

Follow these steps for the compensation strategy when subtracting decimals:

1 Round the number closest to the whole number.

2 Compensate for rounding:

52.5 – 3.9 → 52.5 – 4 *We rounded up by 0.1,*
= 48.5 + 0.1 *which means we*
= 48.6 *subtracted extra so we need to add 0.1.*

65.4 – 8.3 → 65.4 – 8 *We rounded down by 0.3,*
= 57.4 – 0.3 *which means we did not subtract enough so we need to subtract 0.3.*
= 57.1

2 **Use the steps of the compensation strategy to complete these decimal subtractions:**

a 5.3 – 3.8 = ☐

5.3 – 4 ◯

_____ ◯ = _____

b 7.2 – 2.9 = ☐

7.2 – 3 ◯

_____ ◯ = _____

c 68.3 – 1.8 = ☐

68.3 – 2 ◯

_____ ◯ = _____

d 32.5 – 9.8 = ☐

32.5 – 10 ◯

_____ ◯ = _____

Mental strategies – bump strategy

1. Bump the number closest to a multiple of ten. This makes the problem easier to do in our heads.
2. Adjust the other number so the difference between the 2 numbers stays the same. This keeps the problem the same.
3. Solve this easier problem. This then gives us the answer to our original problem.

89 + 24

+1 –1

90 + 23 = 113

The bump strategy is when the number closest to ten gets impatient to start the addition process. The other number must adjust to compensate.

1 **Let's practise identifying the number you should bump. Put a ring around the number closest to a multiple of ten.**

a 69, 35 **b** 34, 89 **c** 63, 29 **d** 85, 27 **e** 17, 35 **f** 14, 99

2 **Use the bump strategy for these additions, bumping the first number each time. Write the rearranged sum underneath. The first one has been done for you.**

a 79 + 15 (+1, –1) → 80 + 14 = 94

b 88 + 26 (+2, –2) → ____

c 32 + 56 (____ , ____) → ____

d 83 + 12 (____ , ____) → ____

e 61 + 24 (____ , ____) → ____

f 226 + 52 (+4, –4) → ____

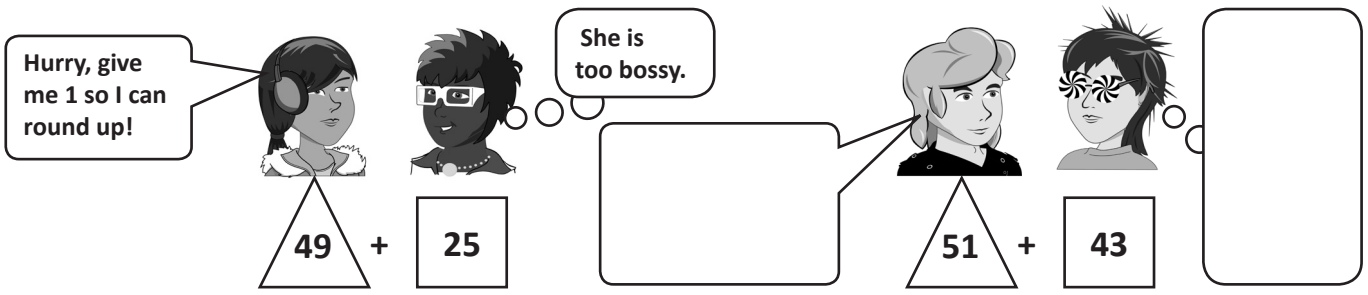
g 142 + 13 (–2, +2) → ____

h 304 + 38 (____ , ____) → ____

i 421 + 65 (____ , ____) → ____

j 275 + 32 (____ , ____) → ____

3 **Read the top of this page again to remember how best to think of the bump strategy. Pretend the numbers in the sums below are people. What would they say to each other? Look at the first example, then write your own for the next sum. You need to think carefully because the second sum is different. Can you see why?**



Mental strategies – bump strategy

1. With subtraction, we need to bump the **second** number to a multiple of ten. This makes the problem easier to do in our heads.
2. Do the same to the other number so the difference between the 2 numbers stays the same.
3. Solve this easier problem. This then gives us the answer to our original problem.

65 – 22
–2 –2
63 – 20 = 43

The bump strategy is when the number closest to ten gets impatient to start the subtraction process. The other number must adjust to compensate.

4 **Use the bump strategy for these subtractions:**

a 46 – 19 **b** 85 – 33 **c** 64 – 21 **d** 56 – 42 **e** 94 – 58

f 595 – 11 **g** 244 – 39 **h** 606 – 27 **i** 315 – 43 **j** 496 – 52

5 **Solve these problems using the bump strategy. Show your working out:**

a Bob weighs 86 kg. Tiffany weighs 52 kg. How much more does Bob weigh than Tiffany?

b Megan saved £194 in 1 year. Her sister Jeda saved £143. How much more did Megan save?

c Janae collected toy pigs and by the end of Year 5 had an impressive 498. By the end of Year 6 she had 878. How many did she accumulate over the year?

d You are bored one rainy afternoon and challenge your brother to a mint eating competition. He eclipsed you, consuming 147 to your 72. How many more did he eat?

Applying strategies – addition

In the previous topic we practised addition using specific mental strategies. In real life, we can choose the mental strategy that suits us. We may have one preferred strategy or we may choose a different one depending on the numbers involved in the problem. There is no one right way to solve a problem.

1 **Show 2 different ways of solving this problem. You may use the strategies covered in the previous topic or explain strategies of your own:**

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:**

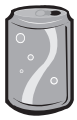
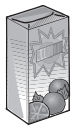
a _____ + _____ = _____

b _____ + _____ = _____

c _____ – _____ = _____

d _____ – _____ = _____

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

	 Bowl of coco flakes	 Bowl of wheat puffs	 Meat pie	 Salad sandwich	 Cola drink	 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	Meat pie and cola drink		
Nate	Bowl of wheat puffs	Meat pie and a milkshake		
Wil	Bowl of coco flakes	Salad sandwich and cola drink		
Trey	Bowl of wheat puffs	Salad 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?

Applying strategies – subtraction

In the previous topic we practised using specific mental subtraction strategies.
As with addition, we can choose the mental strategy that suits us. We may have one preferred strategy or we may choose a different one depending on the numbers involved in the problem. There is no one right way to solve a problem.

1 **Choose a mental strategy and solve these problems. Enter your answers into the crossnumber puzzle:**

Across

1 188 – 35 = ☐

4 90 – 17 = ☐

6 53 – 15 = ☐

7 63 – 49 = ☐

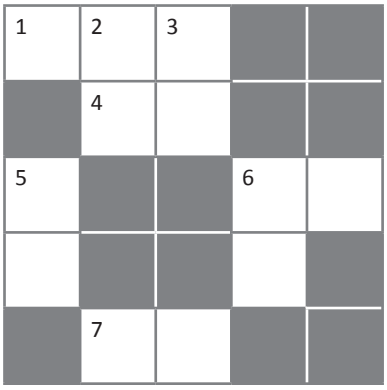
Down

2 94 – 37 = ☐

3 48 – 15 = ☐

5 72 – 24 = ☐

6 88 – 56 = ☐



2 **Show 2 different ways of solving this problem. You may use the strategies covered in the previous topic or explain strategies of your own:**

503 – 251

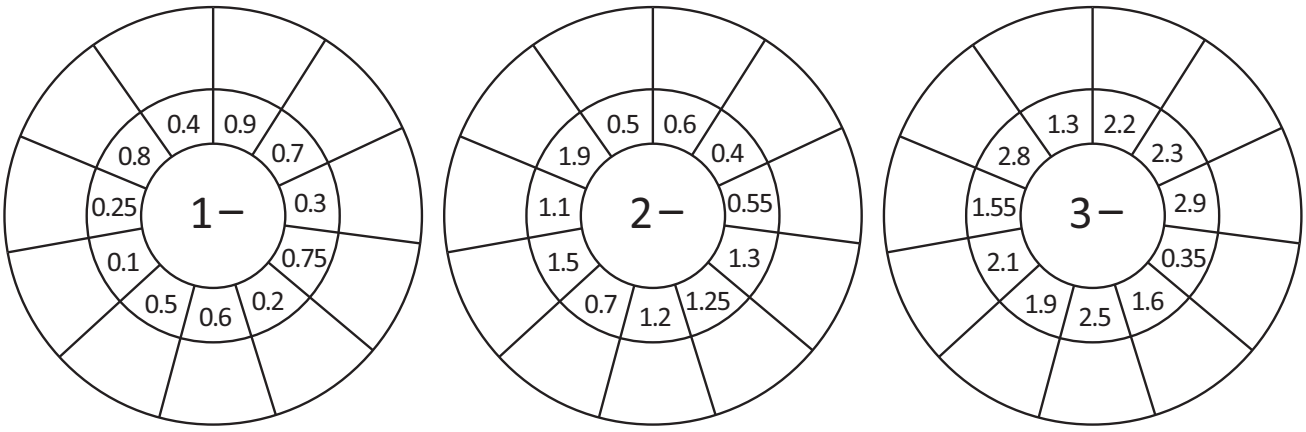
3 **Solve these subtraction problems using a mental strategy:**

a Nariah has £436 saved. She buys a new MP3 player costing £127. How much money does she have left after the purchase?

b Unfortunately Nariah loses her 4th school jumper for the year. Her mum refuses to pay for another and Nariah has to cover the cost of £52 herself. How much of her savings does she now have left?

Applying strategies – subtraction

4 **Practise your subtraction of decimals with these wheels:**

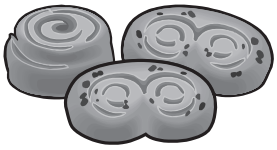


5 **Solve these money problems using a strategy of choice:**

a You have £98.00. The total of the groceries is £67.00. How much change will you get after you pay for your groceries?

b How much will you save if you buy an item on sale that was £76.95 and is now £68.99?

c Hugo's total grocery bill before subtracting his coupons was £77.84. If he had £5.87 in coupons, what was his final bill?



d Your mum gives you £10.00 to go to the bakery to buy morning tea. You buy 3 items at the bakery for a total cost of £8.25. You have a discount voucher worth £1.05. How much change will you get back?

Applying strategies – choosing when to add or subtract

Sometimes we come across problems that require us to both add and subtract or to make a choice between which one to use. Understanding key language terms can help with this decision.

1 **Below are some terms you come across in addition and subtraction word problems. Colour any terms that ask you to add in red. Colour any terms that ask you to subtract in green.**

Find the difference between …

What is the total?

minus

Who has less?

How many altogether?

Who has more?

Find the difference between …

How many more … than …?

… plus …

2 **Stef and Marly's parents give each of them £10 pocket money each week. They must use some of it to buy their lunch from the school canteen every Friday.**

a If they both save the pocket money left over from buying Friday lunches, who will have saved the most by the end of 4 weeks? Use this canteen price list and the tables below. Decide when you need to add and when you need to subtract.

School Canteen Price List

Ham and salad sandwich	£3.40
Ham, cheese and tomato sandwich	£3.50
Toasted cheese sandwich	£3.20
Toasted ham, cheese and tomato sandwich	£3.60

Hot chicken roll	£3.60
Sausage roll	£2.20
Meat pie	£2.80
Tomato sauce	£0.30

Week	1	2	3	4	Total
Stef's lunches	Hot chicken roll	Meat pie with tomato sauce	Two toasted cheese sandwiches	Sausage roll with tomato sauce	
Saved					
Marly's lunches	Sausage roll with tomato sauce	Toasted cheese sandwich	Toasted ham, cheese and tomato sandwich	Two ham and salad sandwiches	
Saved					

b Who saved the most money? _____

c What was the difference? _____

Applying strategies – addition and subtraction

1 **In this activity, you will follow the steps to solve this riddle:**

Step 1: Solve these problems using a mental strategy:

579 + 35 =	462 + 10 =	247 + 30 =	686 + 40 =	116 + 20 =
♥	*	💣	☺	★

Step 2: Solve these problems using a mental strategy:

500 – 28 =	320 – 43 =	900 – 174 =	500 – 364 =	700 – 86 =
E	R	D	S	A

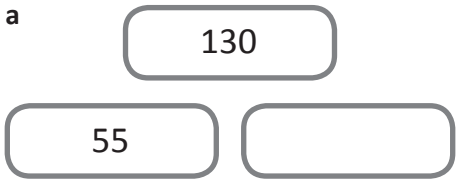
Step 3: Match the letters and symbols that have the same answer from Step 1 and 2. Write the letters in the grid below to solve the riddle:

♥	☺	☺	💣	*	★	★

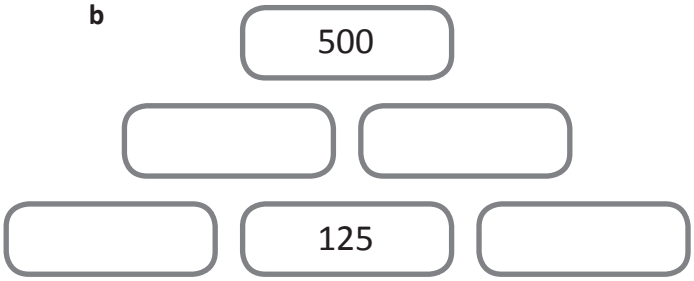
What item of clothing does a house wear? _____

2 **Fill in the missing numbers on these pyramids. The numbers below must add to the number directly above:**

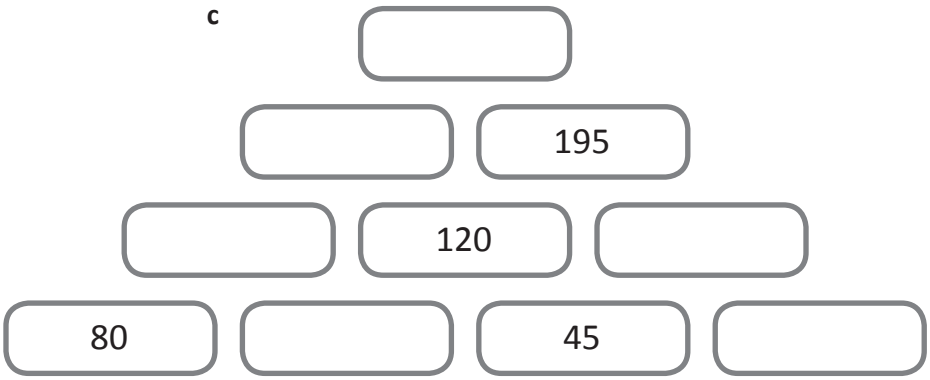
a



b



c



First to 1,000 apply

Getting ready

This is a game for 2 players.

You will need a deck of cards with just the numbers (remove the Queen, King, Jack, Ace and Joker). You will also need a pencil and paper to keep score.

What to do

Player 1 picks 2 cards from the deck and uses them to make a 2-digit number. You can use the 2 cards in any order. For example, if you pick a 5 and a 6 you could make 56 or 65.

When the cards are the same colour, the 2-digit number is added to the player's score. When the cards are different colours, the number is subtracted.

Start the game with 100 points each. The first player to 1,000 wins.

31 apply

Getting ready

This is a game for 4 players. You will need a deck of cards with the jokers removed, as well as a pencil and paper to keep score.

Choose a dealer who deals 3 cards to each player. The rest of the cards go in a pile in the centre.

What to do

The aim of 31 is to collect 3 cards of the same suit that add up as close as possible to 31.

Cards from 2 to 9 are face value so if a card has 2 on it, it is worth 2. Aces are worth 11 and picture cards are worth 10.

Players take turns to take a card from the pile and to discard any one of their cards by placing it face down next to the centre pile.

When a player thinks they have made a total of 31, they show their cards to the other players. The other players have one more turn to try and beat that total (get closer to 31).

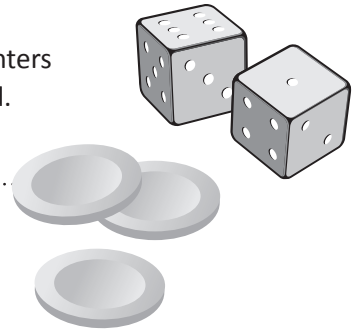
The winning player scores 1 point if it is the closest to 31 in the group.

If the winning player has exactly 31, they score 2 points. The first player to 10 points wins.

Connect 3 apply

Getting ready

This is a game for 2 players. You will need 2 dice, 3 counters for each player in different colours and this game board.



What to do

The aim of this game is to be the first player to have all 3 counters in a line either going horizontally, vertically or diagonally.

Roll the dice and create a number sentence using either + or –.

Decide whether you want to add or subtract. It all depends on which answer you want. Which number do you want to place a counter on?

For example: Player 1 rolls a 4 and a 6.

Player 1 may either say "4 + 6 = 10" or "6 – 4 = 2" or "4 – 6 = –2".

Player 1 then places a counter on the answer to the sum that they made.

Player 2 rolls the dice and creates a number sentence.

Take turns until one player has all 3 counters in a line either going horizontally, vertically or diagonally.

	–5	–4	–3	–2
–1	0	1	2	3
4	5	6	7	8
9	10	11	12	

What to do next

Once you have played this game a few times, try to get more strategic when you are playing. If you are strategic it means that you are thinking ahead.

Which numbers should you be aiming for? Why?

Which numbers are the easiest and the hardest to get? How does knowing this help you to win?

Totally challenging

solve

Getting ready

Complete this challenge with a partner or on your own.

Make a copy of this page and cut out the cards.

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20

What to do

Arrange the cards into six piles.

The challenge is to make each pile add to the same total.

Use trial and error to work out what the total is.

Show what you discover in the space below:

Written methods – addition

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

We can add using a written strategy.

First we estimate the answer using rounding: 1,248 + 457 = is around 1,700.

To calculate the exact answer wee 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 move the exchanged 10 to the tens column.

4 tens add 5 tens is 9 tens plus the exchanged 10 makes 10 tens. We exchange the 10 tens for 1 hundred and write this as 1 hundred and 0 tens.

2 hundreds add 4 hundreds makes 6 hundreds plus the exchanged 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:**

a e: _____

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

b e: _____

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

c e: _____

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

d e: _____

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

e e: _____

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

f e: _____

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

g e: _____

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

h e: _____

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

2 **Solve these problems using the written method:**

a Last month 1,550 fans supported the local football tournament. This month there are 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?

3 **These problems have been solved already. Check that they have been completed correctly. If there are errors, give some feedback as to where they went wrong:**

a

$$\begin{array}{r} 127 \\ +\ 225 \\ \hline 351 \\ \scriptstyle 1 \end{array}$$

b

$$\begin{array}{r} 3301 \\ +\ 3309 \\ \hline 6610 \\ \scriptstyle 1 \end{array}$$

c

$$\begin{array}{r} 4800 \\ +\ 1285 \\ \hline 6185 \\ \scriptstyle 1 \end{array}$$

Written methods – addition

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

a

	4	4	2	6
+		3	4	5

e:

b

	3	1	1	9
+		5	6	3

e:

c

	7	7	1	3
+		8	4	7

e:

d

	8	9	9	9
+	1	0	3	4

e:

e

	5	6	1	2
+	2	3	2	8

e:

f

	8	3	2	0
+	3	6	8	9

e:

5 **Choose a written strategy and solve the following:**

a 6,009 people are at a football match and 648 people are working at the ground. 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?

c In a local election 10,543 people voted. If 5,321 for the party that came first, and 3,595 voted for the second place party, how many people voted for neither of these two parties?

d A new library opens with 18,492 books on its shelves. After six months, the staff check up on their stock and find they have 17,413 books on the premises. They know that 939 are out on loan. How many books are missing?

Written methods – subtraction

	Th	H	T	O
	7	$^{7}\not{8}$	$^{1}4$	2
–	6	1	5	1
	1	6	9	1

We can subtract using a written strategy. First we estimate what the answer will be using rounding: 7,842 – 6,151 = around 1,650.
To calculate the exact answer we start by subtracting the ones:
2 – 1 = 1 one. We put the one in the ones column.
We can't do 4 tens subtract 5 tens so we need to exchange one of the hundreds for 10 tens. We now have 14 tens which makes 140.
14 tens – 5 tens = 9 tens. We put the 9 in the tens column.
As we exchanged one hundred, we now have 7 hundreds left in the hundreds column. 7 hundreds subtract 1 hundred is 6 hundreds.
We put 6 in the hundreds column.
7 thousands – 6 thousands is 1 thousand. We put 1 in the thousand column.
We then check the answer against our estimate. Are the answer and estimate similar?

1 **Solve these subtraction problems. First estimate the answers:**

a e: _____

6 2 1
– 8 2

b e: _____

8 9 7
– 8 9

c e: _____

4 2 1 8
– 3 7 5

d e: _____

5 9 1 6
– 7 2 8

e e: _____

5 4 1 1
– 3 4 6 1

f e: _____

8 4 8 0
– 2 0 9 3

g e: _____

3 2 1 6 3
– 3 2 1 6

h e: _____

9 8 7 6 2
– 1 1 3 9 6

2 **The Mathletics writers have gone on strike until their demands for regular facials and holidays are met. You will have to design 4 of your own subtraction problems and then get a friend to answer them. The challenge is to make them interesting but not too hard.**

a e: _____

–

b e: _____

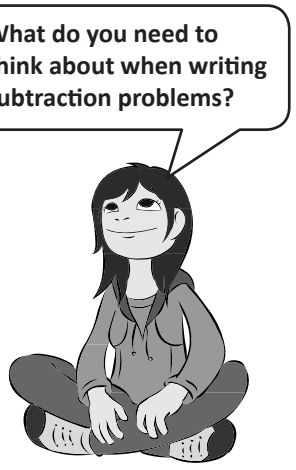
–

c e: _____

–

d e: _____

–



3 **You are working hard to convince your parents that an overseas trip would be a far better idea than the usual 2 week camping holiday with Auntie Mabel and Uncle Bob. They are open to the idea as there are only so many campfire sing-alongs run by Big Bob that they can take. Kumbayah, anyone?**
They have asked you to find the answers to the following questions. Make sure you show your working out:

Holiday Destinations

7 days in Greece ..... £2,825 per family
9 days in Spain..... £1,834 per family
5 days in Hong Kong ..... £5,793 per family
7 days in Australia..... £7,447 per family
5 days in Morocco ..... £4,263 per family

a How much cheaper is a week in Greece than a week in Australia?

b How much more expensive is 5 days in Hong Kong than 9 days in Spain?

c How much would a family save if they decided to go to Morocco for 5 days instead of Hong Kong for 5 days?

d Would it be cheaper to go to Greece and Spain or to go to Hong Kong? If so, how much cheaper?

4 **Given the choice would you solve the problem 5,000 – 1,599 using a written strategy or a mental strategy? Explain why:**

Written methods – adding and subtracting decimals

When we add and subtract decimals we follow the same rules we use when working with whole numbers. We need to make sure we line up the place values and the decimal points.

	$^{3}\cancel{4}$	$^{1}1$ • $^{1}\cancel{2}$		$^{1}6$
–	1	8	• 1	7
	2	3	• 0	9

1 **Estimate and solve these addition problems. Remember to put the decimal point into your answers.**

a e: _____

	6	4	• 1	6
+	1	7	• 1	7

b e: _____

	8	4	• 9	6
+	1	2	• 3	9

c e: _____

	9	8	• 6	2
+		1	9 • 3	8

d e: _____

	3	1	• 6	6
+	1	7	• 6	9

2 **Estimate and solve these subtraction problems. Remember to put the decimal point into your answers.**

a e: _____

	8	• 4		6
–	4	• 2		7

b e: _____

	9	• 1		8
–	7	• 3		6

c e: _____

	9	• 1		1
–	8	• 0		2

d e: _____

	9	• 8		8
–	7	• 9		3

e e: _____

	6	• 6		9
–	3	• 9		9

f e: _____

	8	• 1		1
–	7	• 3		2

3 **Abdul bought three magazines for £6.25, £3.25 and £4.95. How much change did he have from £15?**

4 **Calculate the totals of these bills:**

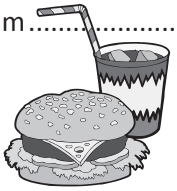
Café Uno

Mochaccino	£	3 • 2 5
Ham and cheese toastie	£	7 • 5 0
Choc chip cookie	£	2 • 7 5

£ _____

Bill's Burgers

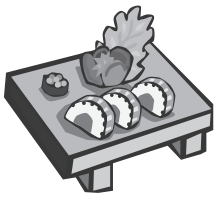
Coke	£	2 • 5 0
Double cheese burger	£	7 • 0 0
Chips	£	3 • 7 5
Ice cream	£	3 • 6 0



£ _____

Sushi Heaven

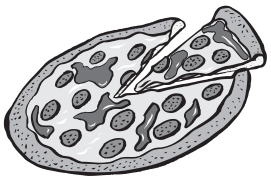
Teriyaki chicken	£	4 • 6 0
Avocado and salmon	£	5 • 1 5
Cucumber and tuna	£	4 • 2 5



£ _____

Pete's Pizza

Hawaiian pizza	£	9 • 2 5
Vegetarian pizza	£	8 • 7 5
Margarita pizza	£	8 • 5 0



£ _____

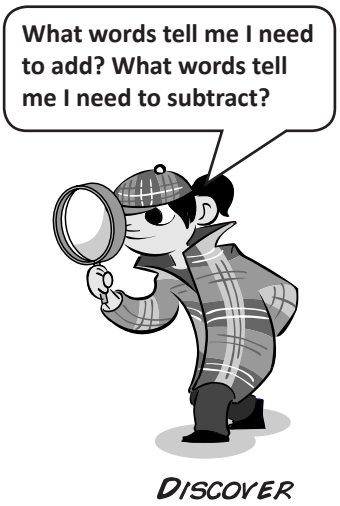
5 **Use the bills to find the answers to the following:**

a Which was cheaper, eating at Bill's Burgers or Pete's Pizza? By how much?

b If you ate at Cafe Uno, Sushi Heaven and Pete's Pizza all in one week, how much would you spend on eating out?

c If you ate at all four restaurants, how much change would you have from £100?

Written methods – adding and subtracting



1 **Use addition, subtraction or a combination of both to solve these word problems.**

a At the 2006 Census, England's population consisted of 27,606,760 males and 23,156,140 females. What was the total population? How many more males than females were there?

b Archie, Molly and Matilda have a combined mass of 119 kg. If Archie weighs 45 kg and Molly weighs 2.5 kg less than him, how much does Matilda weigh? Mum weighs 63 kg and Dad's mass is Archie's and Matilda's combined. What is the mass of the whole family?

c Mars is 206,670,000 km from the Sun and Earth is 147,100,000 km from the sun. What is the difference between these distances?

d Harry used his old building blocks to build a staircase. He used 78 blocks on the bottom row. He then used 13 less blocks every time in each row after that. How many blocks had he used by the time he had built 6 rows?

e Keiran and Adam were given the same amount of money for their birthdays. When they went shopping together, Keiran found a CD that he liked but it cost £18.75, which was more money than he had. Adam lent him his money as well. When he paid, Keiran received £13.25 in change which he gave back to Adam. How much money had they each received for their birthdays? How much does he still owe Adam?

You can bank on it! solve

Getting ready

Use Mrs Lilly Lee's bank statement below to answer the questions at the bottom of the page.

Nest Egg Bank of Great Britain

Bank Statement

Mrs Lilly Lee
30 Fulham Road
London SW3 6JF

Statement begins 30 October 2014
Statement ends 15 November 2014
Account Number 06 234 268 389 0975

Date	Transaction	Withdrawals	Deposits	Balance
30 Oct 2014	Opening Balance			3,596.84
01 Nov 2014	Salary/Pay		1,546.97	5,143.81
05 Nov 2014	S/Mkt Groceries	123.98		5,019.83
05 Nov 2014	Petrol	67.45		
06 Nov 2014	New Clothing	125.40		
08 Nov 2014	Council Tax	845.00		
10 Nov 2014	Deposit		345.78	
11 Nov 2014	Account Fee	5.00		
13 Nov 2014	Electricity Bill	674.65		
15 Nov 2014	Salary/Pay		1,546.97	
	Opening Balance	**Total Debits**	**Total Credits**	**Closing Balance**
	£3,596.84			

What to do next

Use a calculator to complete the following:

a Fill in the total debits by adding all the withdrawals.

b Fill in the total credits by adding the deposits.

c Did Mrs Lee deposit or withdraw more money? _____

What was the difference? _____

d Complete the balance column by adding each deposit and subtracting each withdrawal. What was Mrs Lee's closing balance?

e Mrs Lee is paid twice a month. What is her monthly pay? _____

f How much did Mrs Lee pay altogether for her council tax and electricity bill? _____

By jingo – it's bingo!

apply

Getting ready

You can play this bingo game with a friend. You will need to use a die to see if you are allowed to play.

One player can have a turn only if they throw an odd number, the other only if they throw an even number.

What to do

Throw the die. If you are allowed to have a turn, nominate a number from Box A and subtract a number from Box B. If this number is on your bingo card, cross it off. If not, it is the other player's turn. You can use numbers more than once. The first player with all the numbers on their card crossed out is the winner.

Box A	
200	300
400	500
600	700
800	900
1,000	1,100
1,200	1,300

Box B	
799	532
987	876
346	1,131
222	145
1,032	751
137	549

Player 1					
455		554		168	
	249		354		201
578		324		163	

Player 2					
549		169		751	
	268		149		401
655		654		124	

Working out space