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 → + 10 → ☐ → − 15 → ☐ → + 50 → ☐ → + 30 → ◯

b 200 → − 50 → ☐ → + 25 → ☐ → − 30 → ☐ → + 55 → ◯

c 99 → + 11 → ☐ → + 50 → ☐ → + 50 → ☐ → − 20 → ◯

d 76 → + 24 → ☐ → + 35 → ☐ → + 15 → ☐ → − 25 → ◯

Addition and Subtraction

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.

+4

20 21 22 23 24 25 26 27 (28) 29 30 31 (32) 33 34 35 36 37 38 39 40
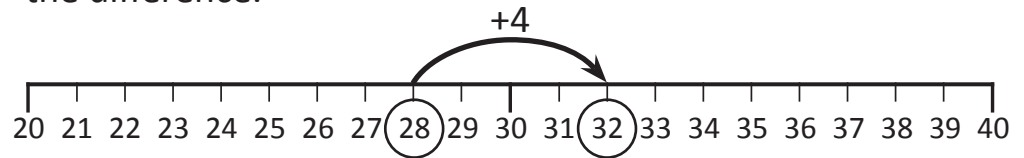
Complements: $35 + 65 = 100$ so $100 - 35 = 65$

$12 + 8 = 20$ 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

$17 - 9 =$

$27 - 9 =$

$37 - 9 =$

$47 - 9 =$

$57 - 9 =$

$67 - 9 =$

Set 2

$21 - 6 =$

$31 - 6 =$

$41 - 6 =$

$51 - 6 =$

$61 - 6 =$

$71 - 6 =$

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 = ☐

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4 Complete these function tables using counting on:

a

In	Rule	Out
120		
123		
	− 118	
126		
124		

b

In	Rule	Out
102		
104		
	− 96	
108		
101		

c

In	Rule	Out
87		
81		
	− 78	
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
$19 - 9 =$ ☐	$(18 - 9) + 1$
$201 - 100 =$ ☐	
$141 - 70 =$ ☐	
$71 - 35 =$ ☐	

b

See	Think
$15 - 8 =$ ☐	$(16 - 8) - 1$
$31 - 16 =$ ☐	
$99 - 50 =$ ☐	
$87 - 44 =$ ☐	

c

See	Think
$26 - 12 =$ ☐	$(24 - 12) + 2$
$52 - 25 =$ ☐	
$68 - 33 =$ ☐	
$104 - 51 =$ ☐	

d

See	Think
$24 - 13 =$ ☐	$(26 - 13) - 2$
$48 - 25 =$ ☐	
$70 - 36 =$ ☐	
$78 - 40 =$ ☐	

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.
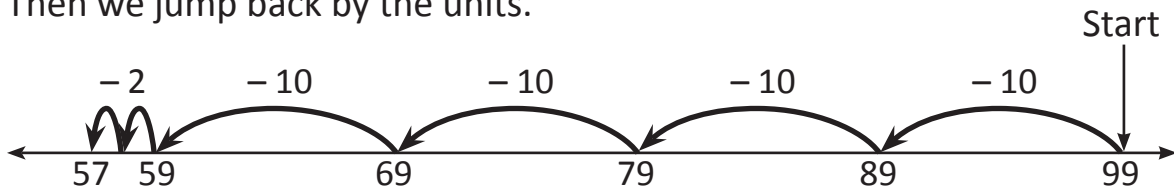
For $99 - 51$, think $100 - 50$ subtract $2 = 48$

CHECK

$101 - 50 =$

$99 - 49 =$

$100 - 49 =$
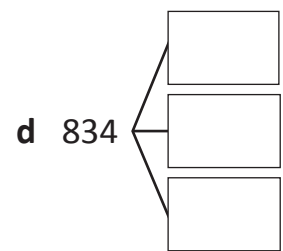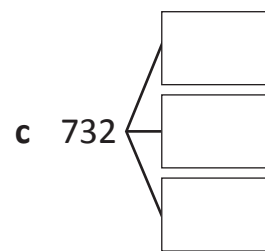
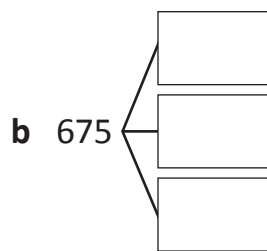$99 - 51 =$ | **$100 - 50 =$** | $100 - 51 =$

$98 - 50 =$

$99 - 50 =$

$97 - 50 =$
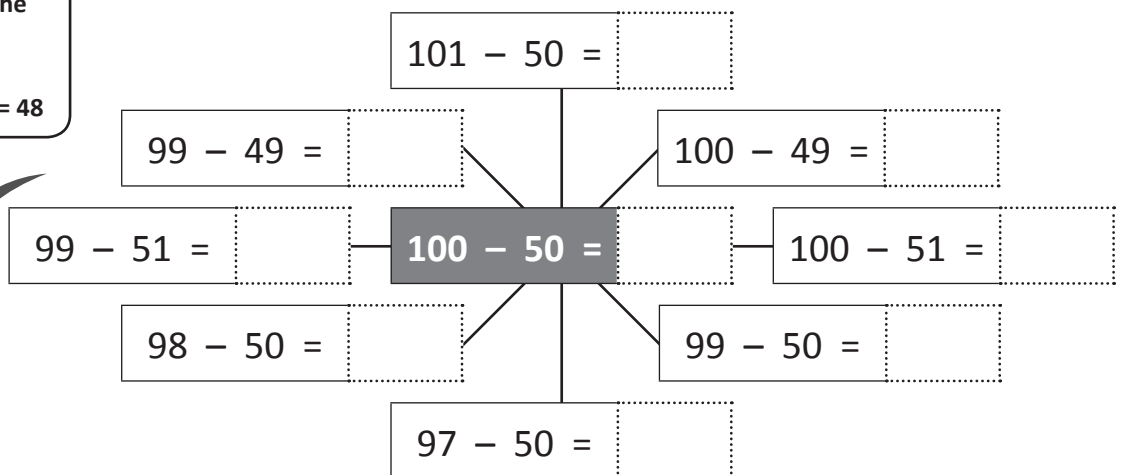
Subtraction mental strategies – jump strategy

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.

Start

-2 -10 -10 -10 -10

57 59 69 79 89 99

99 – 42 = 57

1 **Solve these using the jump strategy:**

a 125 – 42 = ☐

b 168 – 36 = ☐

c 335 – 54 = ☐

d 245 – 45 = ☐

Addition and Subtraction

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

☐ – ☐ = ☐

←———————————————————————————→

b Caramel melts

☐ – ☐ = ☐

←———————————————————————————→

c Milk bottles

☐ – ☐ = ☐

←———————————————————————————→

d Chocolate buds

☐ – ☐ = ☐

←———————————————————————————→

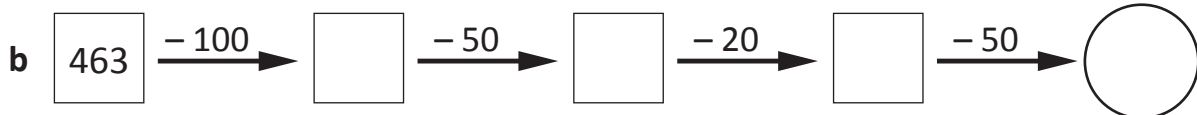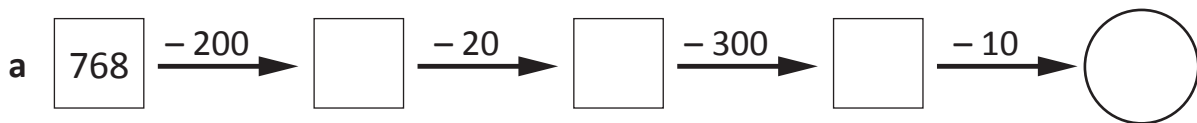# Subtraction mental strategies – split strategy

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.
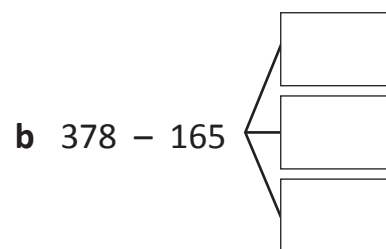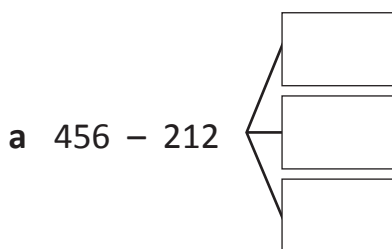
$255 - 132$ → 100, 30, 2 → $255 - 100 = 155$ → $155 - 30 = 125$ → $125 - 2 = 123$

$255 - 132 = 123$
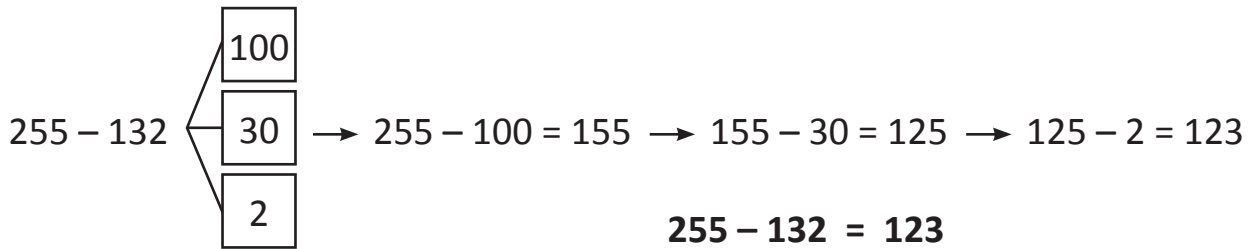
1 **Practise splitting numbers into hundreds, tens and ones:**

a 482

b 675

c 732

d 834
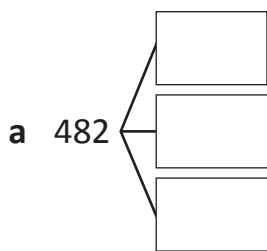
2 **Complete these subtraction trails:**

a 768 $- 200$ → ☐ $- 20$ → ☐ $- 300$ → ☐ $- 10$ → ◯

b 463 $- 100$ → ☐ $- 50$ → ☐ $- 20$ → ☐ $- 50$ → ◯

3 **Use the split strategy with these problems:**

a $456 - 212$

b $378 - 165$

$456 - 200 =$ _____

_____ $- 10 =$ _____

_____ $- 2 =$ _____

So, $456 - 212 =$ _____

$378 - 100 =$ _____

_____ $- 60 =$ _____

_____ $- 5 =$ _____

So, $378 - 165 =$ _____

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Addition and Subtraction

Subtraction mental strategies – split strategy

4 **Try these subtractions with the split strategy:**

a 479 − 45 = _____

So, 479 − 45 = _____

b 834 − 21 = _____

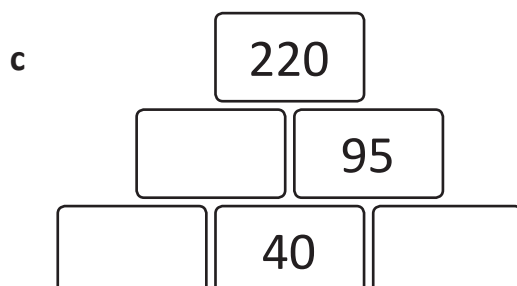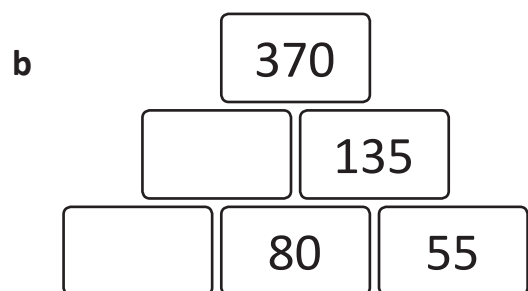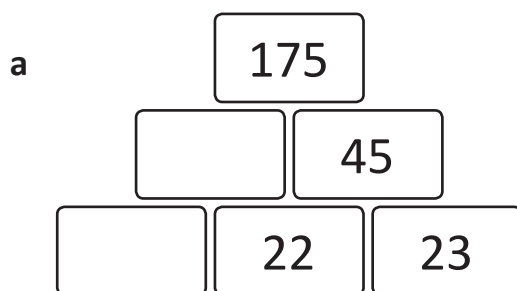So, 834 − 21 = _____

c 637 − 312 = _____

So, 637 − 312 = _____

d 567 − 232 = _____

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.**

a

| 175 |
| 45 |
| 22 | 23 |

b

| 370 |
| 135 |
| 80 | 55 |

c

| 220 |
| 95 |
| 40 | |

d

| 530 |
| 280 |
| 120 | |
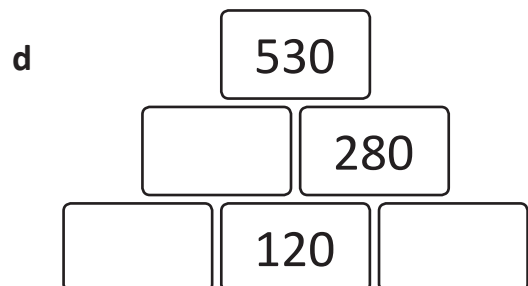
Subtraction mental strategies – compensation strategy

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 (+ 1)

75 (+ 1) = 76

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 = _____

c 62 = _____

d 23 = _____

e 87 = _____

f 99 = _____

g 103 = _____

h 21 = _____

i 88 = _____

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

a 136 − 29 = $\boxed{}$

136 − 30 (+ 1)

_____ (○) = _____

b 145 − 38 = $\boxed{}$

145 − 40 (+ 2)

_____ (○) = _____

c 156 − 39 = $\boxed{}$

156 − ____ (○)

_____ (○) = _____

d 184 − 48 = $\boxed{}$

184 − ____ (○)

_____ (○) = _____

E
2

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Addition and Subtraction

Subtraction mental strategies – compensation strategy

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

e   145 − 29   = _____

145 − 30   ◯

_____ − ◯ = _____

f   176 − 69   = _____

_____ − ◯

_____ − ◯ = _____

g   365 − 42   = _____

_____ − ◯

_____ − ◯ = _____

h   250 − 32   = _____

_____ − ◯

_____ − ◯ = _____

....

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

Subtraction grid puzzles solve

What to do → Complete these subtraction cross number puzzles:

a

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

b

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