Unit 12. Inverse

National Curriculum Requirement

Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Notes

Whilst a mathematical definition of inverse would be an operation that takes a value back to its identity, inverse can be thought of as an operation which takes a value back to its initial magnitude. The inverse, for example, of the minus 3 in the sum 5 - 3 = 2 is add 3 because 2 + 3 = 5.

The first exercise gives, we hope, a demonstration of inverse as an undoing operation. It is, probably, the way in which the idea of inverse would be tested in the SAT test.

The second exercise helps, we hope, pupils to see how subtraction can be checked with addition. Generally speaking, pupils find subtraction more difficult than addition and a practical use of inverse is that of checking the accuracy of subtraction. and hopefully with a little help from an adult, pupils will be able to acquire this skill.

© www.brain-cells.co.uk

Using Adding to Undo Subtracting

Show how you could undo the take away by adding to find the missing numbers in the grey boxes. The first one has been done for you

$\square - 2 = 5$

$5 + 2 = 7$

$\square - 2 = 1$

$\square - 2 = 3$

$\square - 2 = 6$

$\square - 3 = 1$

$\square - 3 = 4$

$\square - 3 = 5$

$\square - 3 = 3$

© www.brain-cells.co.uk

_ - 4 = 1	_ - 4 = 5
_ - 4 = 3	_ - 4 = 2
_ - 5 = 2	_ - 5 = 1
_ - 5 = 4	_ - 5 = 3
_ - 5 = 5	_ - 5 = 6

© www.brain-cells.co.uk

☐ - 6 = 1	☐ - 6 = 3
☐ - 6 = 4	☐ - 6 = 2
☐ - 7 = 2	☐ - 7 = 1
☐ - 7 = 3	☐ - 8 = 1
☐ - 8 = 2	☐ - 9 = 1

© www.brain-cells.co.uk

☐ - 9 = 7	☐ - 8 = 5
☐ - 4 = 10	☐ - 4 = 12
☐ - 5 = 10	☐ - 5 = 12
☐ - 6 = 11	☐ - 5 = 10
☐ - 8 = 7	☐ - 9 = 7

© www.brain-cells.co.uk

Checking Subtraction by Adding

Here is a way of checking answers to takeaway sums with addition.

15 - 3

	T	U
	1	5
-		3
	1	2

Check with +

Is the start and end the same?

	T	U
		3
+	1	2
	1	5

Check and then put a tick or a cross to show which are right and which are wrong. The first two have been done for you.

13 - 5

	T	U
	1	3
-		5
	1	2

Check with +

	T	U
		5
+	1	2
	1	7

26 - 14

	T	U
	2	6
-	1	4
	1	2

Check with +

	T	U
	1	4
+	1	2
	2	6

25 - 16

	T	U
	2	5
-	1	6
	1	1

Check with +

	T	U
	1	6
+	1	1

© www.brain-cells.co.uk

12 - 5

	T	U
	1	2
-		5
		7

Check

	T	U
		5
+		7

16 - 7

	T	U
	1	6
-		7
	1	1

Check

	T	U
		7
+	1	1

18 - 6

	T	U
	1	8
-		6
	1	2

Check

	T	U
		6
+	1	2

12 - 5

	T	U
	1	2
-		5
		7

Check

	T	U
		5
+		7

24 - 5

	T	U
	2	4
-		5
	1	9

Check

	T	U
		5
+	1	9

© www.brain-cells.co.uk

23 - 18

	T	U
	2	3
-	1	8
		5

Check

	T	U
	1	8
+		5

22 - 15

	T	U
	2	2
-	1	5
	1	3

Check

	T	U
	1	5
+	1	3

32 - 19

	T	U
	3	2
-	1	9
	1	3

Check

	T	U
	1	9
+	1	3

37 - 18

	T	U
	3	7
-	1	8
	2	1

Check

	T	U
	1	8
+	2	1

33 - 14

	T	U
	3	3
-	1	4
		9

Check

	T	U
	1	4
+		9

© www.brain-cells.co.uk