< BACK TO:

CONTENTS

The Four Operations

The Four Operations and their signs.

Addition	Subtraction
+	—
Multiplication	**Division**
x	÷

The answers are called:

3 + 4 = 7 (sum) 7 — 5 = 2 (difference) 3 x 2 = 6 (product)

6 ÷ 2 = 3 (quotient)

There are two ways of setting out the operations, **horizontal** and **vertical**.

Horizontal form

3 + 4 = 7 7 — 5 = 2 3 x 2 = 6

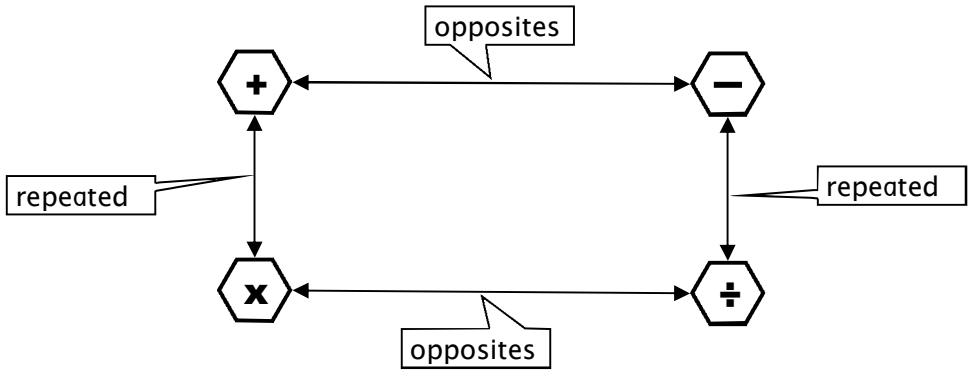
6 ÷ 2 = 3

Vertical form

$$\begin{array}{r} 3 \\ +\ 4 \\ \hline 7 \end{array} \qquad \begin{array}{r} 7 \\ -\ 5 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 3 \\ \times\ 4 \\ \hline 7 \end{array} \qquad 2\overline{)6}\ 3$$

All four operations are closely related as shown in the diagram below.



Addition is the process of putting numbers together to find out how many are there altogether.

Subtraction is the opposite process, taking away one number from another to find the difference.

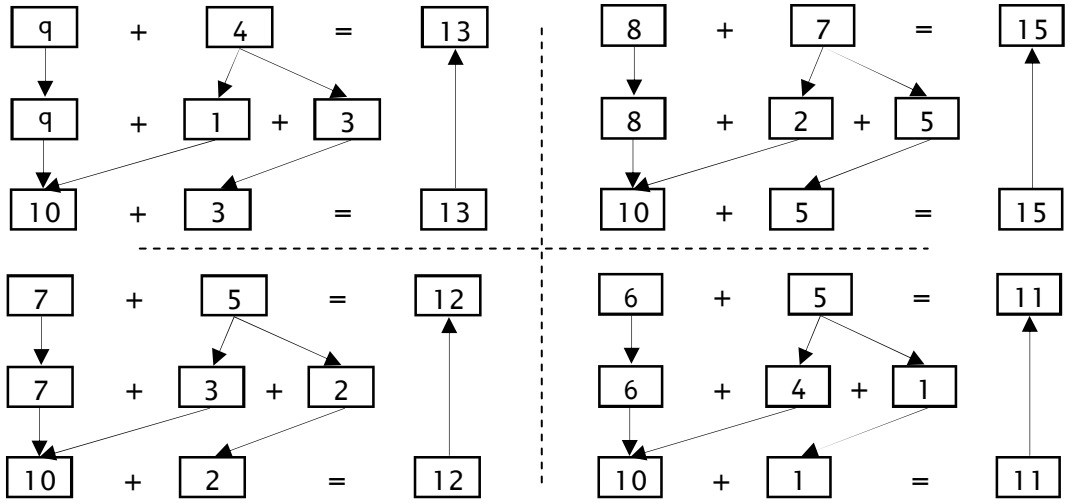
Multiplication is a shorter way of repeated addition.

Division is the inverse of multiplication. Division could be explained as repeated subtraction.

addition

Adding single digit numbers with answers larger then 10.

The method is based on: 9 + 1 = 10, 8 + 2 = 10, 7 + 3 = 10, 6 + 4 = 10.



Using doubles and near doubles.

Learn and memorise **doubles.**	2 + 2 = 4	5 + 5 = 10	8 + 8 = 16
	3 + 3 = 6	6 + 6 = 12	9 + 9 = 18
	4 + 4 = 8	7 + 7 = 14	10 + 10 = 20
Spot the **doubles** and use them to simplify the addition.	3 + 4 = 7		6 + 8 = 14
	(3 + 3) +1 = 7		(6 + 6) +2 = 14
	4 + 5 = 9		7 + 9 = 16
	(4 + 4) + 1 = 9		(7 + 7) + 2 = 16

Partitioning - splitting numbers into tens and ones.

7 34 + 23 = 50 30 + 20 + 4 + 3 50 + 7 = 57	45 + 32 = 40 + 30 + 5 + 2 70 + 7 = 77	75 + 24 = 90 + 9 = 99

Subtraction methods.

There are 3 easy ways to work out differences like this: ***56 — 9***

1st way 56 — 6 — 3 = 47

2nd way 56 — 10 + 1 = 47

3rd way

$$\begin{array}{r} {}^{4}\cancel{5}\,{}^{16}6 \\ -\ 9 \\ \hline 47 \end{array}$$

Subtracting multiples of 10 from multi digit numbers.

Compensation strategy.

90 → 100 — 10

450 — 90 = 450 — 100 + 10 = 360

70 → 100 — 30

345 — 80 = 345 — 100 + 20 = 265

80 → 100 — 20

625 — 70 = 625 — 100 + 30 = 555

60 → 100 — 40

532 — 60 = 562 — 100 + 40 = 472

Relationship between addition and subtraction.

8 + 5 = 13	9 + 7 = 16
13 — 8 = 5	16 — 9 = 7
13 — 5 = 8	16 — 7 = 9

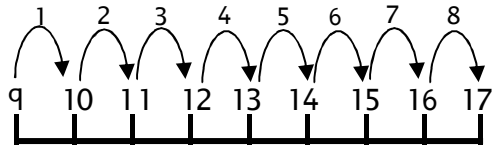
How much more or less?

To work out problems such as

Sue has $9, *Helen has* $17.
How much more has Helen?

Set out $\boxed{\$9}$ + $\square$ = $17

Work out



9 + 8 = 17

or

17 — 9 =
17 — 10 + 1 =

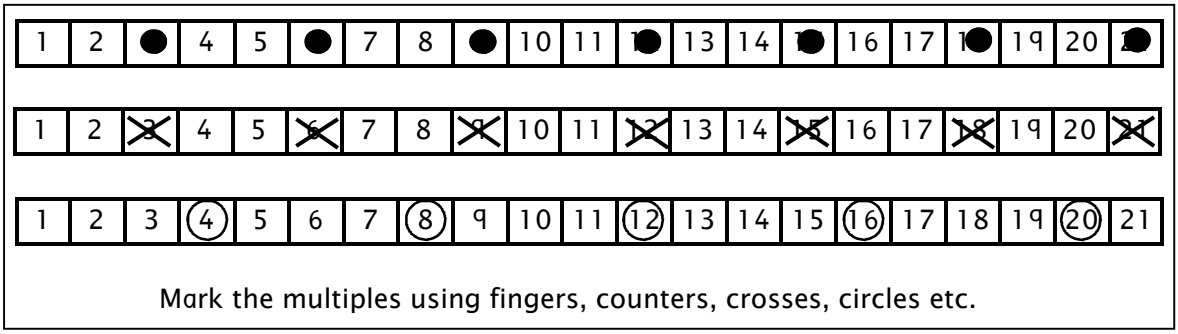
7 + 1 = 8

or

17 — 9 =
17 — 7 — 2 =

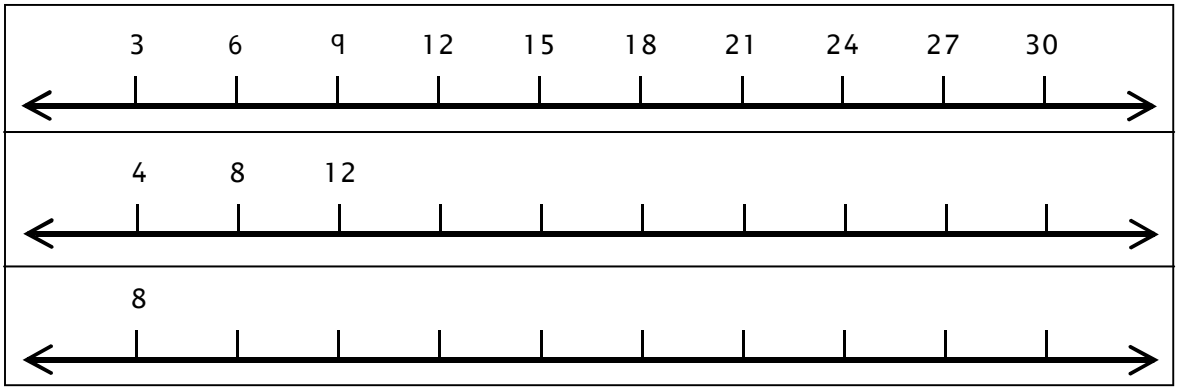
10 — 2 = 8

Counting on in multiples using a number track.

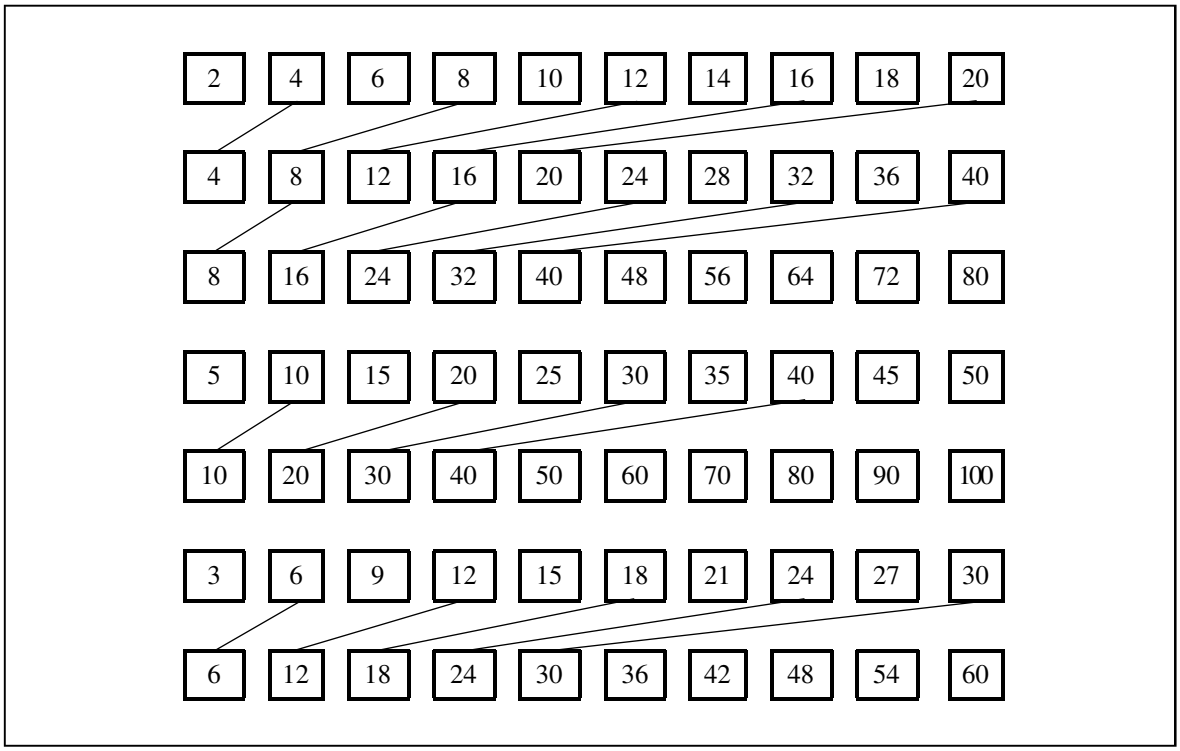


Mark the multiples using fingers, counters, crosses, circles etc.

Writing multiples on number lines.



Counting on in multiples using cards.



Using a line of multiples for division.

$$6\overline{)1\,3^{1}4^{2}4}\quad 2\,2\,4$$

6 12 18 24
2 4

Remainders:

12 + 1 = 13
12 + 2 = 14

$$3\overline{)2\,2^{1}7^{2}7}\quad 7\,5\,9$$

3 6 9 12 15 18 21 24 27
5 7 9

Remainders:

21 + 1 = 22
15 + 2 = 17

$$4\overline{)2\,9^{1}5^{3}4^{2}}\quad 7\,3\,8\ r2$$

4 8 12 16 20 24 28 32
3 7 8

Remainders:

28 + 1 = 29
12 + 3 = 15
32 + 2 = 34

$$12\overline{)4\,9^{1}5^{3}6\,2^{2}}\quad 4\,1\,3\,0\ r2$$

12 24 36 48
1 3 4

Remainders:

48 + 1 = 49
12 + 3 = 15

Division by 2 digits.

$$12\overline{)204}\quad 17$$

-12

84

12 24 36 48 60 72 84
1 7

Work out multiples of 13 by repeated addition.

13 26 39 52 65
2 4 5

$$13\overline{)3185}\quad 245$$

-26

58

-52

65

-65

00

(13)
13
(26)
13
(39)
13
(52)
13
(65)