THE MATH HANDBOOK

FOR STUDENTS WITH MATH DIFFICULTIES,
DYSCALCULIA, DYSLEXIA OR ADHD
(GRADES 1-7)

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The Math Handbook
for Students with Math Difficulties,
Dyscalculia, Dyslexia or ADHD

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Foreword

The Math Handbook for Students with Math Difficulties, Dyscalculia, Dyslexia or ADHD has been specially developed for:

* Students who have been diagnosed with Dyscalculia; other terms may include Mathematics Learning Disability, or Mathematics Disorder.
* Students who have been diagnosed with Dyslexia; as according to research more than fifty percent of those experience difficulties with mathematics. Some students may have Dyslexia and Dyscalculia as co-existing disorders.
* Students diagnosed with ADHD; as they may struggle with mathematics. Some students may have ADHD and Dyscalculia as co-existing disorders.
* Students who have difficulties in learning Mathematics.
* Slow learners.
* Teens/Adults who have severe Math Difficulties or Dyscalculia.

Students who are struggling with Math will improve their self-confidence and independence when using the The Math Handbook for Students with Math Difficulties, Dyscalculia, Dyslexia or ADHD. It will provide them with extra support, reduce their anxiety about Math and produce better results.

This book is suitable to be used in combination with Educational Therapy or remedial intervention in Math that students with dyscalculia or Math difficulties need. An assessment conducted by a psychologist is essential and early interventions are most effective.

I would like to thank all the teachers, Allied Educators and Educational Therapists who generously provided feedback pertaining to the first edition of the MRB in Singapore. Special thanks to Dr Wong Khoon Yoong (Singapore) and Dr Steve Chinn (UK) for their feedback, supportive words and inspirational work.

Lastly, thank you to my students and their parents who provided me with invaluable feedback and information. Hopefully many others will benefit from this book and enjoy learning Math!

Helmy Faber
Developmental Psychologist
-Educational Therapist

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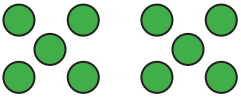
Number Bonds of 10

Number Bonds of 10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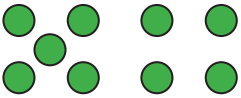
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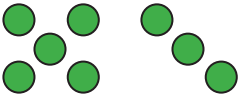
9 + 1 = 10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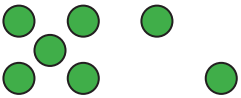
8 + 2 = 10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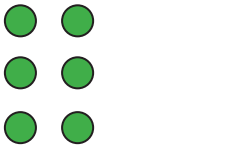
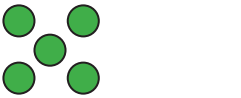
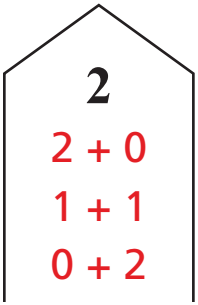
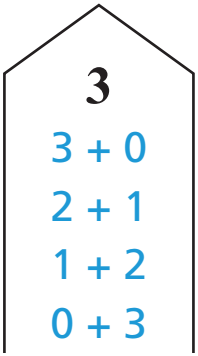
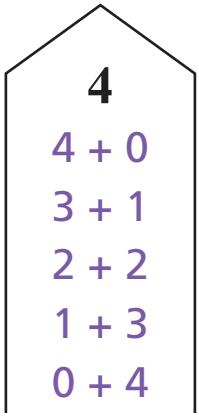

+
6 + 4 = 10

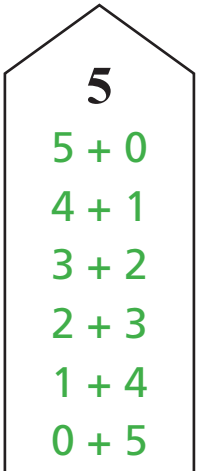

+
5 + 5 = 10

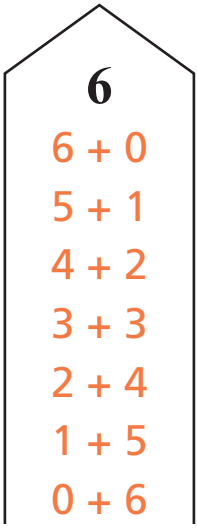
Number Bonds up to 10











7	8	9	10
7 + 0	8 + 0	9 + 0	10 + 0
6 + 1	7 + 1	8 + 1	9 + 1
5 + 2	6 + 2	7 + 2	8 + 2
4 + 3	5 + 3	6 + 3	7 + 3
3 + 4	4 + 4	5 + 4	6 + 4
2 + 5	3 + 5	4 + 5	5 + 5
1 + 6	2 + 6	3 + 6	4 + 6
0 + 7	1 + 7	2 + 7	3 + 7
	0 + 8	1 + 8	2 + 8
		0 + 9	1 + 9
			0 + 10

Commutative addition: 7 + 2 = 2 + 7 etc…

Addition up to 20

10 + 10 = 20

11 + 9 = 20  9 + **11** = 20

12 + 8 = 20 8 + **12** = 20

13 + 7 = 20 7 + **13** = 20

14 + 6 = 20 6 + **14** = 20

15 + 5 = 20 5 + **15** = 20

16 + 4 = 20 4 + **16** = 20

17 + 3 = 20 3 + **17** = 20

18 + 2 = 20 2 + **18** = 20

19 + 1 = 20 1 + **19** = 20

20 + 0 = 20 0 + **20** = 20

Basic Addition and Subtraction

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

Doubles

1 + 1 = 2

2 + 2 = 4

3 + 3 = 6

4 + 4 = 8

5 + 5 = 10

6 + 6 = 12

7 + 7 = 14

8 + 8 = 16

9 + 9 = 18

10 + 10 = 20

11 + 11 = 22

12 + 12 = 24

13 + 13 = 26

14 + 14 = 28

15 + 15 = 30

16 + 16 = 32

17 + 17 = 34

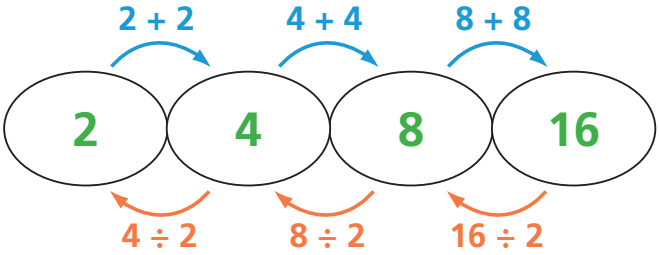
18 + 18 = 36

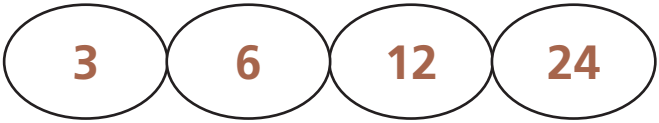
19 + 19 = 38

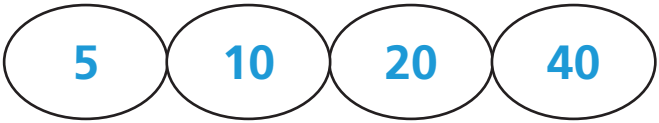
20 + 20 = 40

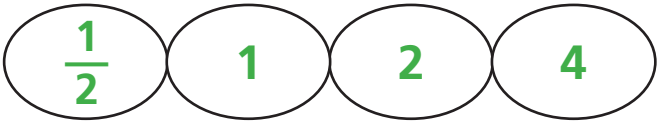
Doubling and Halving

Some examples:

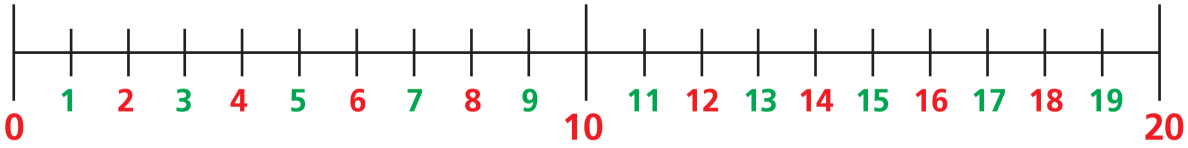








Number Line Till 20

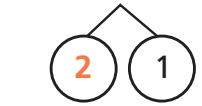


Addition and Subtraction Below 20

8 + 3 = ?

Step 1:

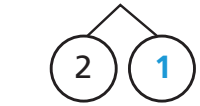
8 + 3



8 + 2 = 10

Step 2:

8 + 3



10 + 1 = 11

8 + 3 = 11

! Note: 8 + 3 = 3 + 8

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16 – 3 = ?

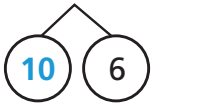
Step 1:

16 – 3

6 – 3 = 3

Step 2:

16 – 3



10 + 3 = 13

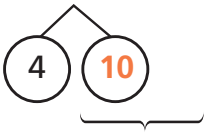
16 – 3 = 13

! Check your answer: 13 + 3 = 16

14 – 6 = ?

Step 1:

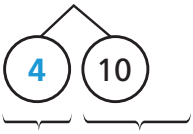
14 – 6



10 – 6 = 4

Step 2:

14 – 6



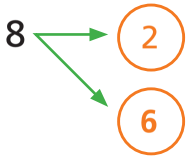
4 + 4 = 8

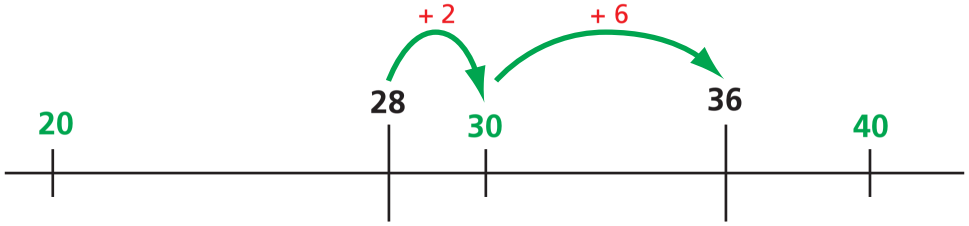
14 – 6 = 8

! Check your answer: 8 + 6 = 14

Addition Using Number Line

28 + 8 = ?



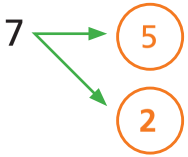


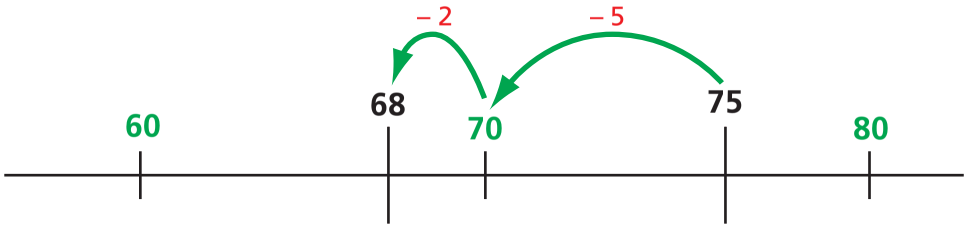
28 + 8 = 36

28 + 2 = 30
30 + 6 = 36

Subtraction Using Number Line

75 – 7 = ?





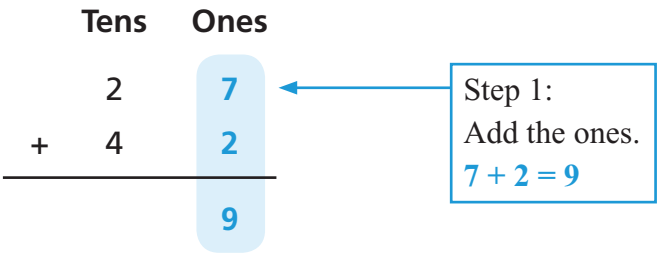
75 – 7 = 68

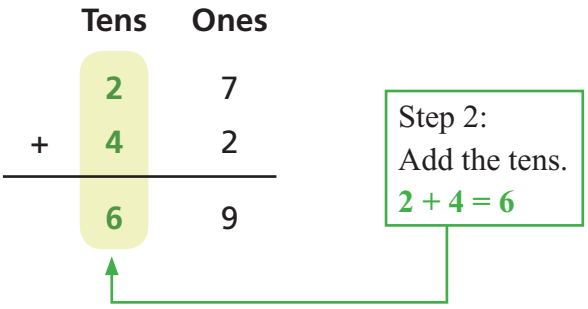
75 – 5 = 70. 70 – 2 = 68
! Check your answer: 68 + 7 = 75

Addition – Up to 2-digit Numbers

27 + 42 = ?

* Place the numbers you are going to add such that the digits in the same place values are placed in the same column (i.e. ones under ones, tens under tens, etc).





Addition – Up to 4-digit Numbers

2,764 + 978 = ?

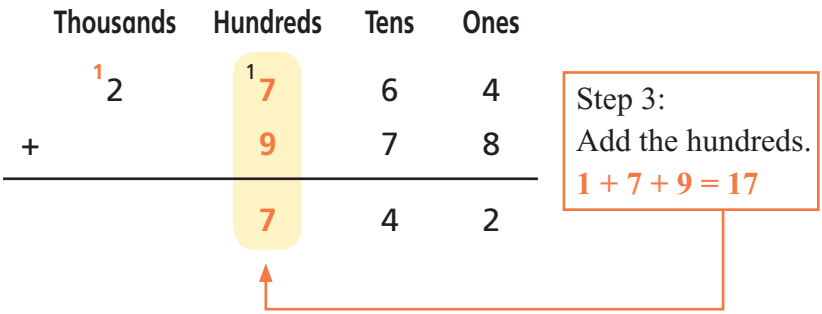
* Always place the number with more digits on top.

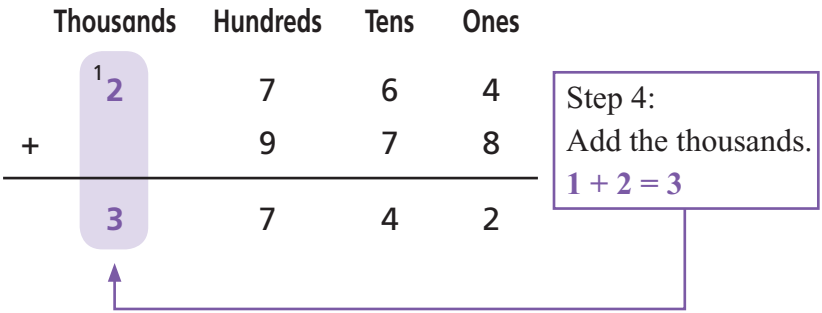
	Thousands	Hundreds	Tens	Ones
	2	7	$^{1}6$	4
+		9	7	8
				2

Step 1:
Add the ones.
4 + 8 = 12

	Thousands	Hundreds	Tens	Ones
	2	$^{1}7$	$^{1}6$	4
+		9	7	8
			4	2

Step 2:
Add the tens.
1 + 6 + 7 = 14

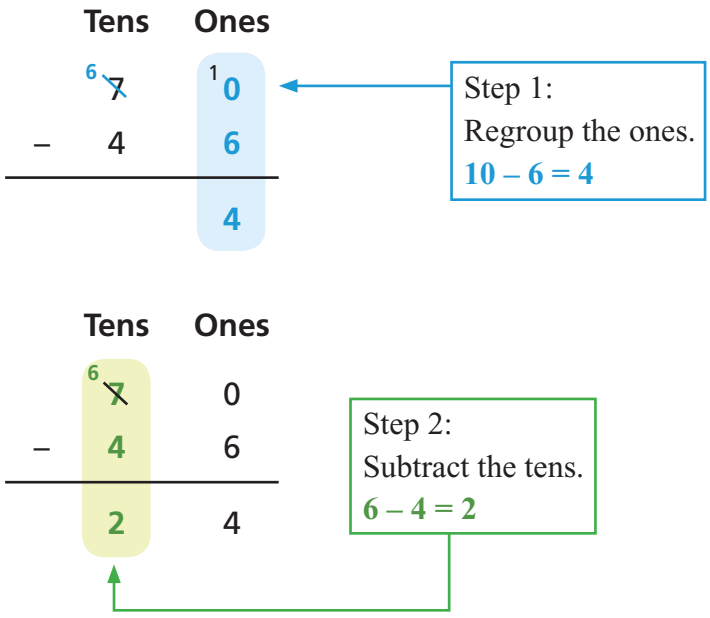




Subtraction – Up to 2-digit Numbers

* Place the numbers you are going to add such that the digits in the same place values are placed in the same column. (i.e. ones under ones, tens under tens, etc)

70 – 46 = ?



! Check your answer: 24 + 46 = 70

Subtraction – Up to 3-digit Numbers

718 – 179 = ?

	Hundreds	Tens	Ones
	7	$^{0}\cancel{1}$	$^{1}8$
–	1	7	9
			9

Step 1:
Regroup the ones.
18 – 9 = 9

	Hundreds	Tens	Ones
	$^{6}\cancel{7}$	$^{10}\cancel{1}$	$^{1}8$
–	1	7	9
		3	9

Step 2:
Regroup the tens.
10 – 7 = 3

	Hundreds	Tens	Ones
	$^{6}\cancel{7}$	$^{10}\cancel{1}$	$^{1}8$
–	1	7	9
	5	3	9

Step 3:
Subtract the hundreds.
6 – 1 = 5

! Check your answer: 539 + 179 = 718

Math Vocabulary (1)

Operation	Sign	Meaning	Example
Addition	+	Sum, adding, altogether, in all, more	7 + 2 = 9
Subtraction	–	Minus, difference, take out, take away, left, gave away	8 – 5 = 3
Multiplication	×	Times, adding equal groups	5 × 6 = 30
Division	÷	Sharing things equally, each get	24 ÷ 8 = 3

Sign	Meaning	Example
=	Is equal to	5 + 3 = 3 + 5
≠	Is not equal to	10 ≠ 9 + 2
>	Is greater than	6 > 3
<	Is smaller than	5 < 8