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

\[ \begin{array}{cccc}
\text{ } & + & 0 & 10 + 0 = 10 \\
\text{ } & + & 1 & 9 + 1 = 10 \\
\text{ } & + & 2 & 8 + 2 = 10 \\
\text{ } & + & 3 & 7 + 3 = 10 \\
\text{ } & + & 4 & 6 + 4 = 10 \\
\text{ } & + & 5 & 5 + 5 = 10 \\
\end{array} \]
# Number Bonds up to 10

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

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Addition up to 20

10 + 10 = 20
11 + 9 = 20
12 + 8 = 20
13 + 7 = 20
14 + 6 = 20
15 + 5 = 20
16 + 4 = 20
17 + 3 = 20
18 + 2 = 20
19 + 1 = 20
20 + 0 = 20

9 + 11 = 20
8 + 12 = 20
7 + 13 = 20
6 + 14 = 20
5 + 15 = 20
4 + 16 = 20
3 + 17 = 20
2 + 18 = 20
1 + 19 = 20
0 + 20 = 20

for Students with Math Difficulties, Dyscalculia, Dyslexia or ADHD
# Basic Addition and Subtraction

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## Doubles

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<td>$2 + 2$</td>
<td>$7 + 7$</td>
<td>$14$</td>
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<td>$4 + 4$</td>
<td>$9 + 9$</td>
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<tr>
<td>$15 + 15$</td>
<td>$20 + 20$</td>
<td>$40$</td>
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</table>
Doubling and Halving

Some examples:

2 + 2 = 4
4 ÷ 2 = 2

4 + 4 = 8
8 ÷ 2 = 4

8 + 8 = 16
16 ÷ 2 = 8

3 + 3 = 6
6 ÷ 2 = 3

5 + 5 = 10
10 ÷ 2 = 5

1 ÷ 2 = 1/2
2 ÷ 2 = 1
4 ÷ 2 = 2

1/2 + 1/2 = 1
1 + 1 = 2
2 + 2 = 4

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Addition and Subtraction Below 20

8 + 3 = ?

Step 1:
8 + 3

2 1

8 + 2 = 10

Step 2:
8 + 3

2 1

10 + 1 = 11

8 + 3 = 11

! Note: 8 + 3 = 3 + 8

16 – 3 = ?

Step 1:
16 – 3

10 6

6 – 3 = 3

Step 2:
16 – 3

10 6

10 + 3 = 13

16 – 3 = 13

! Check your answer: 13 + 3 = 16
$14 - 6 = ?$

**Step 1:**

\[
\begin{array}{c}
14 - 6 \\
\underline{10 - 6} = 4
\end{array}
\]

**Step 2:**

\[
\begin{array}{c}
14 - 6 \\
4 + 4 = 8
\end{array}
\]

$14 - 6 = 8$

! Check your answer: $8 + 6 = 14$
Addition Using Number Line

28 + 8 = ?

$28 + 2 = 30$

$30 + 6 = 36$

$28 + 8 = 36$
Subtraction Using Number Line

$75 - 7 = ?$

$75 - 7 = 68$

Check your answer: $68 + 7 = 75$

$75 - 5 = 70, 70 - 2 = 68$

for Students with Math Difficulties, Dyscalculia, Dyslexia or ADHD
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).

### Step 1:
Add the ones. 
7 + 2 = 9

### Step 2:
Add the tens. 
2 + 4 = 6
Addition – Up to 4-digit Numbers

2,764 + 978 = ?

* Always place the number with more digits on top.

<table>
<thead>
<tr>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
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<tr>
<td>2</td>
<td>7</td>
<td>16</td>
<td>4</td>
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<tr>
<td>+</td>
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<td>7</td>
<td>8</td>
</tr>
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<td>2</td>
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</table>

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

Step 2: Add the tens. 
1 + 6 + 7 = 14
Step 3:
Add the hundreds.
\[1 + 7 + 9 = 17\]

Step 4:
Add the thousands.
\[1 + 2 = 3\]
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)

$70 - 46 = ?$

\[
\begin{array}{c@{}c@{}c@{}c}
\text{Tens} & \text{Ones} \\
6 & 10 & - & 4 \\
\hline
& 6 & 4 \\
\end{array}
\]

\text{Step 1:}
\begin{align*}
\text{Regroup the ones.} \\
10 - 6 &= 4
\end{align*}

\[
\begin{array}{c@{}c@{}c@{}c}
\text{Tens} & \text{Ones} \\
6 & 0 & - & 4 \\
\hline
& 2 & 4 \\
\end{array}
\]

\text{Step 2:}
\begin{align*}
\text{Subtract the tens.} \\
6 - 4 &= 2
\end{align*}

! Check your answer: $24 + 46 = 70$
Subtraction – Up to 3-digit Numbers

718 – 179 = ?

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<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
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<tr>
<td>1</td>
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<td>9</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>1</td>
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1. Step 1: Regroup the ones. 18 – 9 = 9
2. Step 2: Regroup the tens. 10 – 7 = 3
3. Step 3: Subtract the hundreds. 6 – 1 = 5

! Check your answer: 539 + 179 = 718

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Math Vocabulary (1)

<table>
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<th>Operation</th>
<th>Sign</th>
<th>Meaning</th>
<th>Example</th>
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<td>Addition</td>
<td>+</td>
<td>Sum, adding, altogether, in all, more</td>
<td>$7 + 2 = 9$</td>
</tr>
<tr>
<td>Subtraction</td>
<td>−</td>
<td>Minus, difference, take out, take away, left, gave away</td>
<td>$8 - 5 = 3$</td>
</tr>
<tr>
<td>Multiplication</td>
<td>×</td>
<td>Times, adding equal groups</td>
<td>$5 \times 6 = 30$</td>
</tr>
<tr>
<td>Division</td>
<td>÷</td>
<td>Sharing things equally, each get</td>
<td>$24 \div 8 = 3$</td>
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<table>
<thead>
<tr>
<th>Sign</th>
<th>Meaning</th>
<th>Example</th>
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<td>=</td>
<td>Is equal to</td>
<td>$5 + 3 = 3 + 5$</td>
</tr>
<tr>
<td>≠</td>
<td>Is not equal to</td>
<td>$10 \neq 9 + 2$</td>
</tr>
<tr>
<td>&gt;</td>
<td>Is greater than</td>
<td>$6 &gt; 3$</td>
</tr>
<tr>
<td>&lt;</td>
<td>Is smaller than</td>
<td>$5 &lt; 8$</td>
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