

IF YOU ADD 1 TO A NUMBER,
YOU GET THE NEXT ONE.

$$1 + 25 = 26$$

$$13 + 1 = 14$$

$$63 + 1 = 64$$

$$72 + 1$$

$$1 + 15 = 16$$

$$1 + 18$$

IF YOU ADD 2 TO AN ODD ONE,
YOU GET THE NEXT ODD

$$2 + 7 = 9 \quad | \quad 15 + 2 = 17$$

IF YOU ADD 2 TO AN EVEN ONE,
YOU GET THE NEXT EVEN

$$2 + 8 = 10 \quad | \quad 14 + 2 = 16$$

$$2 + 26 = 28$$

$$2 + 34 = 36$$

2

THE FIRST 9-RECIPE

THINK / LESS AND TEEN

$7 + 9$

6 TEEN

$9 + 4$

3 TEEN

$9 + 9$

8 TEEN

$9 + 2$

$9 + 5$

4 TEEN

$9 + 6$

2ND 9-RECIPE

THINK / MORE, / LESS

$$87 + 9$$

$$96$$

$$29 + 4$$

$$33$$

$$23 + 9$$

$$32$$

$$76 + 9$$

$$129 + 5$$

$$134$$

$$119 + 3$$

THE 10-PARTNERS

A VISUAL

$$14 + 6$$

$$21 + 9$$

$$35 + 5$$

$$42 + 8$$

$$57 + 3$$

$$96 + 4$$

Four Seven

STEPPING Eleven STONE

$4+7=11$

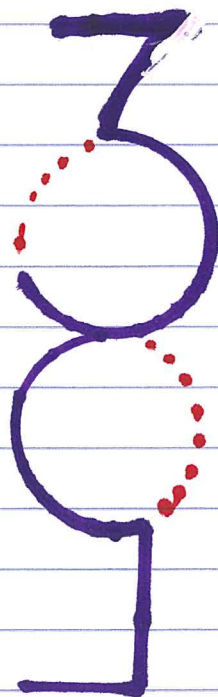
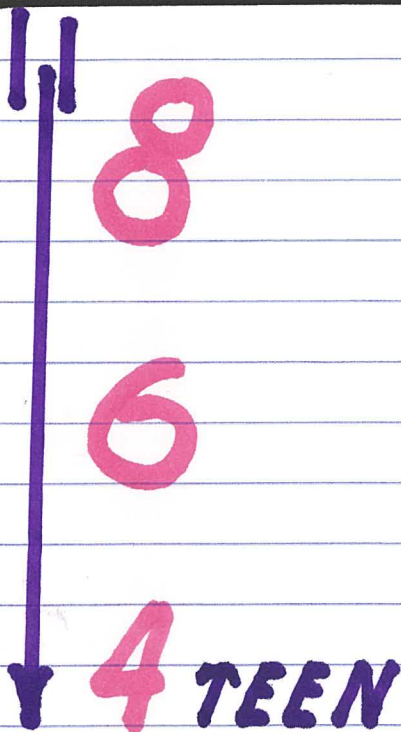
$4+7=11$

$4+7=11$

$5+7=$

$4+8=$

$3+8$



3.5.8

5.8.13

ALGORITHMS

THINK

$$\begin{array}{r} + 15 \\ 37 \\ \hline + 8 \\ 45 \end{array}$$

RELAY
METHOD
ADDING UP!

WITHOUT
CRUTCH
FINGERS

EYES

$$\begin{array}{r} 88 \\ + 15 \\ \hline 103 \end{array}$$

PEN

THINK

$$\begin{array}{r} + 16 \\ 79 \\ \hline + 17 \\ 96 \end{array}$$

$$9 - 2 = 7$$

$$9 - 4 = 5$$

THINK 1 LESS, 1 MORE

$$37 - 9 = 28$$

$$72 - 9 = 63$$

$$59 - 8 = 51$$

$$49 - 3 = 46$$

$$106 - 9 = 97$$

$$237 - 9 = 228$$

$$13 - 5 = 8 \quad | \quad 15 - 7 = 8$$

THE DIRECT WAY

2 STEPS
THE INDIRECT WAY
USING THE 10-PARTNERS

$$12 - 7 = 3 + 2 = 5$$

$$14 - 8 = 2 + 4 = 6$$

$$44 - 6 = 38 \quad (40 - 2)$$

$$75 - 7 =$$

ALGORITHMS

“PUT / TAKE /

$$\begin{array}{r} 43 \\ - 8 \\ \hline 35 \end{array}$$

$\Delta \bullet 13 - 8 = 5$

$\Delta \bullet 4 - 1 = 3$

$$\begin{array}{r} 73 \\ - 25 \\ \hline 48 \end{array}$$

$\Delta \bullet 13 - 5 = 8$

$\Delta \bullet 6 - 2 = 4$

THE NEW TABLES

9×2

5×2

6×2

9×3

5×4

6×4

9×4

5×6

6×6

9×5

5×8

6×8

9×6

2×2

3×4

9×7

2×3

7×8

9×8

7×3

7×6

9×9

8×4

8×8

3×3

5×3

7×2

4×2

3×6

5×7

7×4

4×4

3×8

5×5

7×7

8×2

THE NEW TABLES

6 and Even
Half the
Number and
the Number

$6 \times 2 = 12$

$6 \times 4 = 24$

$6 \times 6 = 36$

$6 \times 8 = 48$

5 and Even
Half the
Number

and **Zero**

$5 \times 2 = 10$

$5 \times 4 = 20$

$5 \times 6 = 30$

$5 \times 8 = 40$

The 9-Partners

1 2 3 4

8 7 6 5

The 9 Recipe:
Think 1 Less
and
the Partner

$9 \times 2 = 18$

$9 \times 3 = 27$

$9 \times 4 = 36$

$9 \times 5 = 45$

$9 \times 6 = 54$

$9 \times 7 = 63$

$9 \times 8 = 72$

$9 \times 9 = 81$

Count to Eight.
Answers in Front.

1 2 3 4

5 6 7 8

$2 \times 2 = 4$

$2 \times 3 = 6$

Answers Behind.

7 6 4 2

8 8 6 4

EVEN EVEN

Answers Behind.

7 3 2 1

8 4 3 2

If
 $2 \times 4 = 8$
Then
 4×4

=

2 **Eight**ssss
sixteen

2x7
2 Weeks
A Fortnight **14**
Nights

4x7
4 Weeks $14+14=28$

4x7 Shortest Month
FEBRUARY
12345678

2nd Month **8** Letters

A WEEK & A WEEK
A FORT NINE **49**

5 x ODD
ENDS IN 5 WITH
ODD NUMBER
IN FRONT

$5 \times 3 = 15$

$5 \times 7 = 35$

HOW MANY ?
 $5 \times 5 = 25$

5

10

15

20

25

30

35

Channel



3 x 3

36

Multiplications

18

Recipes

- Amazing Numbers
- 9 Partners
 - Half 36=18
 - 3x6=18
 - To Remember the 3 Threes Group

8

x

2 3 4

ALGORITHMS

$$\begin{array}{r}
 123 \\
 \times 2 \\
 \hline
 246
 \end{array}$$

$$10 \times 4 = 40$$

$$100 \times 5 = 500$$

$$1000 \times 6 = 6000$$

$$\begin{array}{r}
 123 \\
 \times 321 \\
 \hline
 123 \\
 2460 \\
 36900 \\
 \hline
 39483
 \end{array}$$

$$40 + 56$$

$$57$$

$$\times 8$$

$$456$$

IGNORE

9

CHECK

3

$\times 8$

24(6)

FROM MULTIPLICATION TO DIVISION

VISUALISE, EYES CLOSED.

A PROFESSIONAL MEMORY TRAINING TECHNIQUE

$$9 \times 6 = 54$$

- PULL IT APART & PUT IT TOGETHER AGAIN
A COUPLE OF TIMES.

- SAY ALOUD, $9.6.54$

^{NOW}
REMEMBER

$$54 \div 6 = 9$$

$$54 \div 9 = 6$$

LONG DIVISION

TYPE 1

$$12345 \div 3 = 4115$$

$$\begin{array}{r} \underline{-12} \\ 3 \\ \underline{-3} \\ 4 \\ \underline{-3} \\ 15 \\ \underline{-15} \end{array}$$

TYPE 2

$$34813 \div 5 = 6962 \frac{3}{5}$$

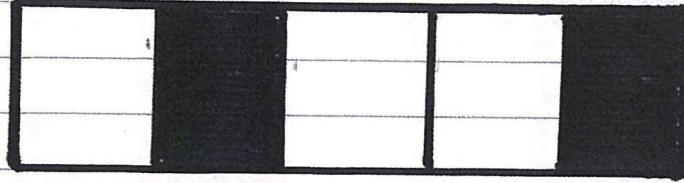
$$\begin{array}{r} -30 \\ \hline 48 \\ -45 \\ \hline 31 \\ -30 \\ \hline 13 \\ -10 \\ \hline 3 \end{array}$$

PRONOUNCE:

3 FIFTHS
(A FRACTION)

NOTE: REMAINDER 3 IS NOT AN ANSWER

FRACTIONS



SHADED

2 OUT OF 5

WRITE

START → $\frac{2}{5}$ ↓

SAY

TWO FIFTHS

NOT SHADED
 $\frac{3}{5}$

$$\frac{5}{5} - \frac{2}{5} = \frac{3}{5}$$

5 FIFTHS - 2 FIFTHS = 3 FIFTHS

$\frac{4}{7}$ NUMERATOR
DENOMINATOR
NAME

SPECIAL NAMES

$\frac{1}{2}$ HALF
 $\frac{1}{3}$ A THIRD
 $\frac{1}{4}$ A QUARTER

$$1 - \frac{3}{7} = \frac{4}{7}$$

$$1 - \frac{5}{8} =$$

$$3 - \frac{4}{5} = 2 \frac{1}{5}$$

$$3 - \frac{2}{9} =$$

$$5 - 2 \frac{1}{7} = 2 \frac{6}{7}$$

$$4 - 1 \frac{2}{11} =$$

PROPER FRACTION	IMPROPER FRACTION	MIXED NUMERAL
$\frac{5}{9}$	$\uparrow \frac{9}{5}$ <p style="text-align: right; color: red;">NAME</p>	$2 \frac{1}{5}$
$\frac{3}{7}$	$\downarrow = 1 \frac{4}{5}$ <p style="text-align: right; color: red;">SAME NAME</p>	
	$\frac{11}{5}$	$2 \frac{1}{5}$ <p style="text-align: right; color: red;">PLUS TIMES</p>
$\frac{12}{7} = 1 \frac{5}{7}$	$2 \frac{3}{4} = \frac{11}{4}$	
$\frac{15}{8} =$	$5 \frac{1}{6} =$	

$$\frac{4}{7} + \frac{1}{3} = \frac{19}{21}$$

DISCOVERY

METHOD

$$\frac{4}{7} - \frac{1}{3} = \frac{5}{21}$$

$$\frac{4}{7} \times \frac{1}{3} = \frac{4}{21}$$

$$\frac{3}{7} \div \frac{1}{2} = \frac{6}{7}$$

DISCOVERY IS AN INNER PROCESS
AND THUS BETTER REMEMBERED

CONVERSIONS

$3\frac{4}{5}$	$3\frac{8}{10}$	3.8	380%
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$1\frac{1}{4}$	$1\frac{25}{100}$	1.25	125%
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$2\frac{3}{4}$	$2\frac{75}{100}$	2.75	275%
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1000 $10 \times 2.34 = 23.4$

 $100 \times 5.67 = 567$

 $340 \div 10000 = .034$

PERCENT TO DECIMAL

$$5\% = .05$$

$$12\% = .12$$

$$175\% = 1.75$$

$$6\% \text{ of } 200 = 12$$

$$12\% \text{ of } 700 = 84$$

$$20\% \text{ of } 60 = 12$$

$$\text{WHAT \%} = \frac{\text{THIS}}{\text{TH. AT}}$$

<p>THIS</p> <p>34 of 1700</p> <p>2%</p>	<p>THAT</p>
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$$54 \text{ of } 80$$

$$54 \div .8 = 6.75\%$$

EQUATIONS USE LETTERS

NOT BOXES

$$\square + 10 = 15$$

$$x + 10 = 15$$

$$x = 15 - 10$$

$$y - 2 = 14$$

$$y = 14 + 2$$

$$4a = 12$$

$$a = 12 \div 4$$

$$\frac{a}{6} = 2$$

$$a = 2 \times 6$$