

VEDIC MATHEMATICS

10-Page Foundation Material

Fast • Accurate • Intelligent Calculation

What is Vedic Mathematics?

Vedic Mathematics is a collection of mathematical techniques and calculation strategies associated with the Vedic-mathematics tradition. The methods taught here are presented as complementary techniques for mental and written calculation. The goal is not to replace standard mathematics, but to give learners additional efficient ways to think about numbers.

Why learn these techniques?

- Develop mental calculation skills
- Reduce unnecessary written steps in suitable problems
- Improve number sense and confidence
- Explore multiple ways to solve a problem
- Build speed while maintaining accuracy

The 16 Sutras — a quick introduction

Commonly taught sutra names include Ekadhikena Purvena, Nikhilam Navatashcaramam Dashatah, Urdhva-Tiryagbhyam, Paravartya Yojayet, Shunyam Saamyasamuccaye and Yaavadunam. In this foundation booklet we focus mainly on practical number techniques.

Golden Rule

Speed is useful only when it is accurate. Learn the idea first, practise slowly, then increase speed.

DR. SAI KIRAN BODDU
GUINNESS WORLD RECORD HOLDER
EDUCATIONAL PSYCHOLOGIST

**TRANSFORMING MINDS...
EMPOWERING FUTURES!**

- GUINNESS WORLD RECORD HOLDER**
in Rapid Calculations & Memory Power
- 5 WORLD RECORDS**
A Mark of Excellence and Global Recognition
- 2 NATIONAL RECORDS**
Pride of the Nation
- 25+ YEARS OF EXCELLENCE**
Inspiring Lakhs of Students, Teachers & Professionals across India and Abroad
- EXPERT IN**
 - VEDIC MATHS
 - MEMORY TECHNIQUES
 - EDUCATIONAL PSYCHOLOGY
 - TEACHER TRAINING

IMPACT THAT MATTERS

- ✓ TRAINED LAKHS OF STUDENTS & THOUSANDS OF TEACHERS
- ✓ CONDUCTED 1000+ WORKSHOPS & SEMINARS WORLDWIDE
- ✓ AUTHOR OF VEDIC MATHS & ALGEBRA BOOKS
- ✓ RECIPIENT OF MULTIPLE AWARDS FOR EXCELLENCE IN EDUCATION

EDUCATING TODAY... LEADING TOMORROW
BUILDING A SMARTER, STRONGER & SUCCESSFUL GENERATION

PAGE 2 — NUMBER SENSE & COMPLEMENTS

1. Complements to 10, 100 and 1000

A complement tells us how much a number needs to reach a convenient base.

$$7 \text{ to } 10 \rightarrow 3$$

$$64 \text{ to } 100 \rightarrow 36$$

$$835 \text{ to } 1000 \rightarrow 165$$

2. Nikhilam idea: subtract from the base

For numbers close to a base such as 10, 100 or 1000, work with the deficiency from that base.

$$98 \times 97 \rightarrow (100-2)(100-3) = 10000-500+6 = 9506$$

$$96 \times 94 \rightarrow (100-4)(100-6) = 10000-1000+24 = 9024$$

3. Quick subtraction from a power of 10

For $1000 - 276$, think of the complement of 276 to 1000.

$$1000 - 276 \rightarrow 724$$

$$10000 - 3847 \rightarrow 6153$$

Practice

- 87×96
- 93×97
- $1000 - 468$
- $10000 - 2759$
- 998×997

PAGE 3 — RAPID ADDITION & SUBTRACTION

1. Left-to-right addition

Instead of always adding from the units column, combine place values mentally.

$$347 + 256 \rightarrow 347 + 200 + 50 + 6 = 603$$

$$485 + 327 \rightarrow 485 + 300 + 20 + 7 = 812$$

2. Compensation

Round one number to a convenient value and compensate.

$$498 + 267 \rightarrow 500 + 267 - 2 = 765$$

$$799 + 156 \rightarrow 800 + 156 - 1 = 955$$

3. Subtraction by compensation

$$1000 - 487 \rightarrow 1000 - 500 + 13 = 513$$

$$735 - 298 \rightarrow 735 - 300 + 2 = 437$$

Mental addition drill

Try to calculate without writing intermediate steps:

- $246 + 398$
- $578 + 297$
- $1250 + 875$
- $999 + 456$
- $2500 - 998$
- $10000 - 4997$

Accuracy check

Estimate first. For $578 + 297$, an estimate is about 875. Your exact answer should be close to that estimate.

PAGE 4 — MULTIPLICATION BY 11 & 12

Multiplication by 11

For a two-digit number $ab \times 11$, place the sum of the digits between them when the sum is below 10.

$$23 \times 11 \rightarrow 2 \mid (2+3) \mid 3 = 253$$

$$41 \times 11 \rightarrow 4 \mid 5 \mid 1 = 451$$

When the middle sum is 10 or more, handle the carry.

$$58 \times 11 \rightarrow 5 \mid 13 \mid 8 \rightarrow 638$$

Multiplication by 12

A convenient mental method is $\times 12 = \times 10 + \times 2$.

$$47 \times 12 \rightarrow 470 + 94 = 564$$

$$125 \times 12 \rightarrow 1250 + 250 = 1500$$

Pattern practice

- 32×11
- 67×11
- 84×11
- 36×12
- 75×12
- 125×12

Think

Which method is faster for you: the standard written method or a mental decomposition? The best technique depends on the numbers and the learner.

PAGE 5 — MULTIPLICATION NEAR 100

Base-100 method

When both numbers are close to 100, use their deviations from 100.

$$103 \times 104 \rightarrow (+3,+4): 103+4 = 107; 3 \times 4 = 12 \rightarrow 10712$$

$$97 \times 96 \rightarrow (-3,-4): 97-4 = 93; 3 \times 4 = 12 \rightarrow 9312$$

$$98 \times 103 \rightarrow (-2,+3): 98+3 = 101; (-2 \times 3) = -6 \rightarrow 10094$$

The last two digits are treated as the base-100 part. For mixed signs, be careful with borrowing/carrying.

General structure

For $(100+a)(100+b)$: $10000 + 100(a+b) + ab$.

Practice

- 102×107
- 104×106
- 95×97
- 92×98
- 101×99
- 96×103

Challenge

Try to solve 998×997 mentally by using 1000 as the base.

PAGE 6 — SQUARING NUMBERS

1. Numbers ending in 5

For a number $n5$, multiply n by $n+1$ and append 25.

$$25^2 \rightarrow 2 \times 3 \mid 25 = 625$$

$$35^2 \rightarrow 3 \times 4 \mid 25 = 1225$$

$$85^2 \rightarrow 8 \times 9 \mid 25 = 7225$$

2. Numbers near 100

Use $(100+a)^2 = 10000 + 200a + a^2$.

$$103^2 \rightarrow 10000 + 600 + 9 = 10609$$

$$97^2 \rightarrow 10000 - 600 + 9 = 9409$$

3. Numbers near 50

Use algebra: $(50+a)^2 = 2500 + 100a + a^2$.

$$53^2 \rightarrow 2500 + 300 + 9 = 2809$$

$$47^2 \rightarrow 2500 - 300 + 9 = 2209$$

Practice

- 45^2
- 55^2
- 75^2
- 95^2
- 102^2
- 98^2
- 52^2
- 48^2

PAGE 7 — DIVISIBILITY, HCF & LCM

Useful divisibility tests

- 2: last digit is even.
- 3: sum of digits is divisible by 3.
- 4: last two digits are divisible by 4.
- 5: last digit is 0 or 5.
- 6: divisible by both 2 and 3.
- 8: last three digits are divisible by 8.
- 9: sum of digits is divisible by 9.
- 10: last digit is 0.
- 11: alternating sum of digits is divisible by 11.
- 13: remove the last digit, multiply it by 4, and add to the remaining number; repeat as needed. The result is divisible by 13 exactly when the original number is.

Example: divisibility by 13

$286 \rightarrow 28 + 6 \times 4 = 52$; 52 is divisible by 13, so 286 is divisible by 13.

HCF and LCM

HCF is the greatest common factor. LCM is the least common multiple. Prime factorisation is a reliable method, while Euclidean division is often efficient for HCF.

$\text{HCF}(48, 18) \rightarrow 48 = 18 \times 2 + 12; 18 = 12 \times 1 + 6; 12 = 6 \times 2 \rightarrow \text{HCF} = 6$

Practice

- Is 7392 divisible by 3?
- Is 5489 divisible by 11?
- Is 845 divisible by 13?
- $\text{HCF}(72, 30)$

PAGE 8 — FRACTIONS & PERCENTAGES

1. Fraction to percentage

Remember common conversions: $1/2=50\%$, $1/4=25\%$, $1/5=20\%$, $1/10=10\%$, $3/4=75\%$.

$$25\% \text{ of } 360 \rightarrow 360 \div 4 = 90$$

$$15\% \text{ of } 200 \rightarrow 10\% + 5\% = 20 + 10 = 30$$

2. Percentage as a fraction of 100

$$18\% \text{ of } 450 \rightarrow 450 \times 18/100 = 81$$

$$7.5\% \text{ of } 800 \rightarrow 800 \times 75/1000 = 60$$

3. Useful percentage reversals

10% = divide by 10; 5% = half of 10% ; 1% = divide by 100; 20% = one-fifth; 25% = one-fourth.

Fraction operations

$$1/2 + 1/4 \rightarrow 3/4$$

$$3/5 - 1/10 \rightarrow 1/2$$

$$2/3 \times 9/4 \rightarrow 3/2$$

Practice

- 35% of 240
- 12.5% of 640
- $3/8$ as a percentage
- $2/5 + 1/10$
- $7/8 - 1/4$

PAGE 9 — INTRODUCTION TO VEDIC ALGEBRA

1. Algebraic identities

$$(a+b)^2 \rightarrow a^2 + 2ab + b^2$$

$$(a-b)^2 \rightarrow a^2 - 2ab + b^2$$

$$(a+b)(a-b) \rightarrow a^2 - b^2$$

2. Factorisation

Look for common factors, difference of squares, and suitable quadratic patterns.

$$6x + 12 \rightarrow 6(x+2)$$

$$x^2 - 25 \rightarrow (x-5)(x+5)$$

$$x^2 + 7x + 12 \rightarrow (x+3)(x+4)$$

3. Linear equations

Keep both sides balanced while simplifying.

$$3x + 5 = 20 \rightarrow 3x = 15 \rightarrow x = 5$$

$$5x - 7 = 18 \rightarrow 5x = 25 \rightarrow x = 5$$

4. Mental expansion

$$102 \times 98 \rightarrow (100+2)(100-2) = 10000 - 4 = 9996$$

Practice

- $(x+5)^2$
- $(y-7)^2$
- x^2-49
- $x^2+9x+20$
- $4x+9=29$

PAGE 10 — PRACTICE, SPEED & MASTERY

Mixed Challenge — try without a calculator

- 1. 98×97
- 2. 45^2
- 3. 125×12
- 4. $999 + 786$
- 5. $10000 - 6384$
- 6. 15% of 360
- 7. Is 286 divisible by 13?
- 8. $\text{HCF}(84, 36)$
- 9. $x^2 - 64 = ?$ (factorise)
- 10. Solve: $7x - 9 = 40$

7-Day Practice Plan

- Day 1: Complements and mental addition/subtraction
- Day 2: $\times 11$, $\times 12$ and mental multiplication
- Day 3: Multiplication near 100
- Day 4: Squaring techniques
- Day 5: Divisibility, HCF and LCM
- Day 6: Fractions, percentages and algebra
- Day 7: Mixed timed test and error analysis

Final Message

Vedic Mathematics is best learned through understanding, repetition and intelligent practice. Start with accuracy, then build speed. Always verify unfamiliar techniques against standard mathematical methods.

Prepared for Vedic Mathematics Training • Dr. Sai Kiran

%%%

Squaring Numbers from 51 to 59 — Vedic Mathematics Technique

The Method

To square any number from 51–59, split it into two digits:

- Left digit = 5
- Right digit = the unit digit (call it n)

Then follow 3 simple steps:

Step 1: Square the left digit $\rightarrow 5^2 = 25$

Step 2: Add the right digit to 25 $\rightarrow 25 + n$

Step 3: Square the right digit and write it as two digits $\rightarrow n^2$ (pad with a leading zero if needed). Suffix this to the result of Step 2.

Worked Examples

$$51^2$$

- Digits: 5 | 1
- Step 1: $5^2 = 25$
- Step 2: $25 + 1 = 26$
- Step 3: $1^2 = 01$
- Suffix: $26 \parallel 01 \Rightarrow 51^2 = 2601$

$$52^2$$

- $5^2 = 25$
- $25 + 2 = 27$
- $2^2 = 04$
- $52^2 = 2704$

$$53^2$$

- $5^2 = 25$
- $25 + 3 = 28$
- $3^2 = 09$
- $53^2 = 2809$

$$54^2$$

- $25 + 4 = 29$
- $4^2 = 16$
- $54^2 = 2916$

$$55^2$$

- $25 + 5 = 30$
 - $5^2 = 25$
 - $55^2 = 3025$
-

Now Complete the Pattern

Number Step 1 & 2 Square of right digit Answer

Number Step 1 & 2 Square of right digit Answer

51^2	$25 + 1 = 26$	$1^2 = 01$	2601
52^2	$25 + 2 = 27$	$2^2 = 04$	2704
53^2	$25 + 3 = 28$	$3^2 = 09$	2809
54^2	$25 + 4 = 29$	$4^2 = 16$	2916
55^2	$25 + 5 = 30$	$5^2 = 25$	3025
56^2	$25 + 6 = 31$	$6^2 = 36$	?
57^2	$25 + 7 = 32$	$7^2 = 49$	?
58^2	$25 + 8 = 33$	$8^2 = 64$	?
59^2	$25 + 9 = 34$	$9^2 = 81$	?

Try it yourself: for each row, suffix the "Square of right digit" column onto the "Step 1 & 2" result to get the final answer.

Remember

$5^2 \rightarrow$ Add the second digit $\rightarrow$ Square the second digit $\rightarrow$ Suffix

Try this one on your own:

$$57^2 = ?$$

$$5^2 = 25, 25 + 7 = 32, 7^2 = 49$$

$$57^2 = \underline{\hspace{2cm}}$$

It's that simple — now fill in the blanks above! 😊

%%%

VEDIC MATHEMATICS

Squaring Numbers Ending in 5 — Learn the Shortcut

When a number ends in 5, its square can be found very quickly using this simple Vedic Mathematics method.

Explanation 1 — 25^2

Take 25.

1. Ignore the final 5 $\rightarrow$ we get 2.

2. Multiply 2 by the next number, 3: $2 \times 3 = 6$

3. Write 25 after 6.

$$25^2 = 625$$

Explanation 2 — 35^2

Take 35.

1. Ignore the final 5 $\rightarrow$ 3
 2. Multiply 3 by the next number, 4: $3 \times 4 = 12$
 3. Append 25.
- $$35^2 = 1225$$

Explanation 3 — 65^2

Take 65.

1. Ignore the final 5 $\rightarrow$ 6
 2. Multiply 6 by the next number, 7: $6 \times 7 = 42$
 3. Append 25.
- $$65^2 = 4225$$

Explanation 4 — 85^2

Take 85.

1. Ignore the final 5 $\rightarrow$ 8
 2. Multiply 8 by the next number, 9: $8 \times 9 = 72$
 3. Append 25.
- $$85^2 = 7225$$

Explanation 5 — 125^2

Take 125.

1. Ignore the final 5 $\rightarrow$ 12
 2. Multiply 12 by the next number, 13: $12 \times 13 = 156$
 3. Append 25.
- $$125^2 = 15,625$$

The Golden Rule

To square any number ending in 5:

Multiply the number before 5 by the next consecutive number, then append 25.

$$n5^2 = [n \times (n + 1)] \parallel 25$$

For example:

$$145^2 \rightarrow 14 \times 15 = 210 \rightarrow 21,025$$

Worksheet 1 — Basic Practice

Question Answer

- | | | |
|----|---------|-------|
| 1 | 15^2 | _____ |
| 2 | 25^2 | _____ |
| 3 | 35^2 | _____ |
| 4 | 45^2 | _____ |
| 5 | 55^2 | _____ |
| 6 | 65^2 | _____ |
| 7 | 75^2 | _____ |
| 8 | 85^2 | _____ |
| 9 | 95^2 | _____ |
| 10 | 105^2 | _____ |

Worksheet 2 — Intermediate Practice

Question Answer

- | | | |
|----|---------|-------|
| 11 | 115^2 | _____ |
| 12 | 125^2 | _____ |
| 13 | 135^2 | _____ |
| 14 | 145^2 | _____ |
| 15 | 155^2 | _____ |
| 16 | 165^2 | _____ |
| 17 | 175^2 | _____ |
| 18 | 185^2 | _____ |
| 19 | 195^2 | _____ |
| 20 | 205^2 | _____ |

Worksheet 3 — Advanced Practice

Question Answer

- | | | |
|----|---------|-------|
| 21 | 225^2 | _____ |
|----|---------|-------|

Question Answer

22 275^2 _____

23 325^2 _____

24 375^2 _____

25 425^2 _____

26 475^2 _____

27 525^2 _____

28 625^2 _____

29 725^2 _____

30 825^2 _____

Worksheet 4 — Challenge

Question Answer

31 995^2 _____

32 $1,005^2$ _____

33 $1,025^2$ _____

34 $1,125^2$ _____

35 $1,205^2$ _____

36 $1,305^2$ _____

37 $1,505^2$ _____

38 $2,005^2$ _____

39 $2,025^2$ _____

40 $2,505^2$ _____

Worksheet 5 — Speed Test

Try to solve these mentally.

Question Answer

41 55^2 _____

42 75^2 _____

43 125^2 _____

44 175^2 _____

45 225^2 _____

Question Answer

46 325^2 _____

47 505^2 _____

48 755^2 _____

49 $1,005^2$ _____

50 $2,005^2$ _____

Time Taken: _____ seconds

Score: _____ / 50

Remember

Number ending in 5 → Multiply the part before 5 by its next number → Append 25

%%%%%%%%%

 VEDIC MATHEMATICS — COMPLETE ANSWER KEY

Page 2 — Number Sense & Complements

1. $87 \times 96 = 8,352$

2. $93 \times 97 = 9,021$

3. $1000 - 468 = 532$

4. $10000 - 2759 = 7,241$

5. $998 \times 997 = 995,006$

Page 3 — Rapid Addition & Subtraction

1. $246 + 398 = 644$

2. $578 + 297 = 875$

3. $1250 + 875 = 2,125$

4. $999 + 456 = 1,455$

5. $2500 - 998 = 1,502$

6. $10000 - 4997 = 5,003$

Page 4 — Multiplication by 11 & 12

1. $32 \times 11 = 352$

2. $67 \times 11 = 737$

3. $84 \times 11 = 924$

4. $36 \times 12 = 432$

5. $75 \times 12 = 900$

6. $125 \times 12 = 1,500$

Page 5 — Multiplication Near 100

1. $102 \times 107 = 10,914$

2. $104 \times 106 = 11,024$

3. $95 \times 97 = 9,215$

4. $92 \times 98 = 9,016$

5. $101 \times 99 = 9,999$

6. $96 \times 103 = 9,888$

7. $998 \times 997 = 995,006$

Page 6 — Squaring Numbers

1. $45^2 = 2,025$

2. $55^2 = 3,025$

3. $75^2 = 5,625$

4. $95^2 = 9,025$

5. $102^2 = 10,404$

6. $98^2 = 9,604$

7. $52^2 = 2,704$

8. $48^2 = 2,304$

Page 7 — Divisibility, HCF & LCM

1. Is 7392 divisible by 3? — Yes

2. Is 5489 divisible by 11? — Yes

3. Is 845 divisible by 13? — Yes

4. HCF of 72, 30 = 6

Page 8 — Fractions & Percentages

1. 35% of 240 = 84

2. 12.5% of 640 = 80

3. $\frac{3}{8}$ as a percentage = 37.5%

4. $\frac{2}{5} + \frac{1}{10} = \frac{1}{2}$

5. $\frac{7}{8} - \frac{1}{4} = \frac{5}{8}$

MEMORY MANTRA

— A transformational —
Memory Workshop
— for students. —

Learn the secret memory techniques
to use the mind like a computer and
remember just about any kind of **Information**.



By Guinness World Record Holder

Dr.Sai Kiran Boddu

BENEFITS OF MEMORY TECHNIQUES



Remember Faster

Recall information quickly
and accurately



Improve Concentration

Focus better, retain more



Excel in Exams

Score higher with
ease and confidence



Boost Confidence

Speak, write and perform
with self-belief



Enhance Creativity

Think out-of-the-box,
solve problems better



Organize Information

Structure ideas, data,
and concepts clearly



Use Your Mind Like a Computer

Process, store, and retrieve
information efficiently



Save Time & Effort

Learn smart, not hard

Customised
Workshops for
Engineering
Colleges



— TO BOOK YOUR SPOT —

— CONTACT —

Mr.SreeNiwas SuMman
on



7396134001

“Unlock Your *Mind*...
Unleash Your *Potential*...
Achieve Your *Dreams*!”

Learn | Remember | Achieve

FIRST TIME IN INDIA

VEDIC MATHS

.. **FOR** ..

IIT ASPIRANTS

Created by
GUINNESS WORLD RECORD HOLDER
Dr. Sai Kiran Boddu.

**Ancient Maths Techniques
to Solve Modern IIT Problems**

WHY VEDIC MATHS?



**SOLVE
10X FASTER**

Save Time,
Solve More



**IMPROVE
ACCURACY**

Zero Errors,
Better Scores



**ENHANCE
CONCENTRATION**

Stay Focused,
Stay Ahead



**BUILD STRONG
CONCEPTS**

Understand Better,
Remember Longer



**EXCEL IN
IIT EXAMS**

IIT JEE Main,
Advanced & Beyond



For Enquiries call:

7396134001, 9441155774

