⚡ Vedic Maths Magic Tricks ⚡

Chapter 7: Instant Squaring for Numbers Ending in 5

Vedic Sutra: "Ekadhikena Purvena"

Squaring any number ending in **5** (such as 15, 45, 85, or 305) can be calculated in seconds without standard multiplication! The Sanskrit Sutra applied here is *"Ekadhikena Purvena"*, meaning **"By One More Than the Previous One"**.

✨ Formula: [N × (N + 1)] | 25

📝 The 2-Step Rule

Step 1: Multiply the initial figures (all digits except the trailing 5) by *one more than itself*.
Step 2: Always attach **25** (5^2) at the end!

📌 Eg-1: Square of 45 ((45)²)

- **Initial digit (N):** 4
- **Step 1:** Multiply by (4 + 1) ➔ 4 × 5 = **20**
- **Step 2:** Suffix $5^2 = 25$ after 20

➔ (45)² = (4 × 5) | 25 = 2025

3-Digit Squaring: Eg-2 — Square of 305 ((305)²)

The same rule applies seamlessly to larger 3-digit and 4-digit numbers! For **305**, the non-five portion is **30**.

📌 Eg-2: Square of 305 ((305)²)

- **Initial portion (N):** 30
- **Step 1:** Multiply 30 × (30 + 1) = **30 × 31**
- **Step 2:** Append **25** at the end

➔ (305)² = 930 | 25 = 93,025

💡 Working Note (W.N.): Quick Vertically & Crosswise for 30 × 31

You can compute **30 × 31** instantly using Chapter 6's Vertical and Crosswise method:

```
  3 0
× 3 1
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• Right: 0 × 1 = 0
• Cross: (3 × 1) + (3 × 0) = 3 + 0 = 3
• Left: 3 × 3 = 9
➔ Result = 930
```

✏️ Chapter 7 Exercises & Complete Solutions

Find the square of the following numbers:

#	Problem	Step-by-Step Working	Answer
1	**$(65)^2$**	Step 1: $6 \times (6 + 1) = 6 \times 7 = 42$ Step 2: Suffix 25	**4225**
2	**$(35)^2$**	Step 1: $3 \times (3 + 1) = 3 \times 4 = 12$ Step 2: Suffix 25	**1225**
3	**$(85)^2$**	Step 1: $8 \times (8 + 1) = 8 \times 9 = 72$ Step 2: Suffix 25	**7225**
4	**$(405)^2$**	Step 1: $40 \times (40 + 1) = 40 \times 41 = 1640$ Step 2: Suffix 25	**164025**

🌟 Chapter 7 Mastery Checklist

✅ **Sutra Name:** *Ekadhikena Purvena* (By one more than the previous).
✅ **Ending Digits:** The last two digits of the square are ALWAYS **25**.
✅ **First Digits:** Computed as $N \times (N + 1)$.
✅ **Scalability:** Works for 2-digit, 3-digit, and higher numbers ending in 5!