Why Vedic Mathematics, A winner's choice?

Vedic Mathematics is emerging as a useful tool for students appearing in competitive examinations like SAT, iSAT, ACT, CAT, GRE, Engineering Entrance examinations…. where "Time Factor" plays a crucial role. Vedic mathematics born as a result of eight years intensive research done by His Holiness, **Jagad guru Swami Sri Bharati Krsna Tirthaji Maharaja**. Today this area of Mathematics functions as a meeting point of ancient wisdom and modern requirement.

Vedic Mathematics simplifies the four basic mathematical operations like addition, subtraction, multiplication and division. This will reduce the time to solve a mathematical problem, especially in examination halls.
For example, if we have to multiply 86 and 98, the conventional method is

$$\begin{array}{r} 86 \times \\ \underline{98} \\ 688 \\ \underline{774\ } \\ 8428 \end{array}$$

But by the method of Vedic Mathematics we can do it in a simple way. The two numbers are set down (Here numbers are 86 and 98) and their difference from a suitable base are written (Here we can take the base 100) down to the right (that is 100-86 = 14 and 100-98 = 02).

$$\begin{array}{l} 86 - 14 \\ \underline{98 - 02} \\ 84/28 \quad \text{Ans: } 8428 \end{array}$$

The answer comes out in two parts. The sign '/' is used here to separate these two parts. To get the first part, cross subtract, either 86 – 2 = 84 or 98 – 14 = 84.To get the second part multiply the difference of the numbers from the base chosen.
i.e. 14 × 2 = 28. Now 28 is the second part of the answer.
Hence the answer is 8428.

It is a useful tool in finding squares and cubes of numbers. In Vedic Mathematics there is a fantastic method to square numbers ending in 5.

For example Find 65^2

Conventional method

$$\begin{array}{r} 65 \times \\ \underline{65} \\ 325 \\ \underline{390} \\ 4225 \\ ===== \end{array}$$

By using the method in Vedic mathematics the answer comes in two parts. To get the first part find the product of first digit (Here it is 6) and one more than the first digit (Here it is 7) of the given number (6 x 7 = 42). To find the second part just put down the square of 5, that is 25.By combining the first part and second part we will get the answer as 4225.

When the final digits of two numbers add up to 10, then there is a shortcut to multiply it. For example 46 x 44.Here sum of the last digits, 6 + 4 = 10.In this case also answer comes in two parts. The left hand part can be calculated by multiplying the penultimate digit by one more than itself, that is 4 x 5 = 20.The right hand part can be calculated by multiplying the two final digits i.e.6 x 4 = 24.By unifying the two parts we will get the answer 2024.

By applying Vedic Mathematics in these ways one can reduce the time for mathematical calculations. This will help to score high marks in competitive examinations. In today's scenario all the competitive examination contains Mathematical aptitude sessions. If the candidate is going to solve problems in a conventional manner he will take lot of time. If one moves with Vedic mathematics in a systematic way, then he can save the time in examination halls. Vedic Mathematics can play a decisive role not only in Arithmetical problems but also in theory of equations geometry etc.

For solving quadratic equations we can use some methods of Vedic mathematics. With the help of these methods one can solve the equations in a lightning speed. For example: Solve $\frac{2}{x+2}+\frac{3}{x+3}=\frac{1}{x+1}+\frac{4}{x+4}$

In conventional method we have to solve it by taking L.C.M on both sides. Then convert it into the form of a quadratic equation. This is a time taking process. Especially in an examination hall. But in Vedic Mathematics there is a shortcut. Consider the equation $\frac{a}{x+a}+\frac{b}{x+b}=\frac{c}{x+c}+\frac{d}{x+d}$, such what a+b = c+d. Then the roots of the equation are x = 0, x = $\frac{-(a+b)}{2}$. With the help of this method we can arrive at the answer without taking the pen.

To solve various problems in Analytic geometry Vedic Mathematics functions as a useful tool. General form of the equation of a straight line is ax+ by + c =0. If two points in a straight line are given, we can find its equation. Usually we are using two-point form or slope-intercept form to find the equation of the straight line when two points are given. But there is a comparatively simple method in Vedic Mathematics to find the equation of a straight line. This can be explained with the help of the following example. Find the equation of a straight line passing through the points (3,4) and (1,2). Standard equation of a straight line is ax + by + c = 0. To get the x-coefficient, take the difference of the y co –ordinates of the given points. Hence coefficient of x, a = 4-2 = 2. To get the y-coefficient take the difference of the x – coordinates of the given points. Hence y–coefficient, b = 3-1=2.
To find the Constant term c = (x –coordinate of the first point) × (y-coordinate of the second Point) – (x-coordinate of the second point) × (y-coordinate of the first point).Therefore C = 3 × 2 -4 × 1 = 2.Then equation is 2x+2y+2 = 0

In integral calculus usually one will met with problems related to partial fractions. current systems have a very lengthy procedure to shape the complicated expressions to partial fractions .Suppose we have to express the expression $\frac{px^2+qx+r}{(x-l)(x-m)(x-n)}$ in the form of partial fractions.

$$\text{Let } \frac{px^2+qx+r}{(x-l)(x-m)(x-n)} = \frac{A}{(x-l)} + \frac{B}{(x-m)} + \frac{C}{x-n}$$

Then we can find A, B and C by the following general relations.

A = $\frac{px^2+qx+r}{(l-m)(l-n)}$ B = $\frac{px^2+qx+r}{(m-l)(m-n)}$ C = $\frac{px^2+qx+r}{(n-m)(n-l)}$

These types of approach will quicken the process to form partial fractions.

Vedic Mathematics simplifies not only the four basic Mathematical operations, it also simplifies problems from calculus, theory of equations, geometry etc. So it is a necessary element for candidates applying for competitive examinations. In the final analysis we can see that the real losers in the competitive examination are persons without any systematic time management. On the other hand the performers overcome "Time factor" through the systematic tackling of "time traps". To hear the news of victory, to conquer tomorrows, to keep the presence in the current and upcoming cutthroat competitions, we can find a good companion in Vedic Mathematics.

References:

Vedic Mathematics by Swami Bharati Krsna Thirthaji

Vedic Mathematics for schools vol-1, vol-2, vol-3 by G.T.Glover