

**From the Snail Trails to Missile Tracks:
A Preliminary Exploration of “Converging Curve” and
“Tracing Curve”**

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Abstract: This research, initiated by a problem excerpted from Baidu, one of the most famous internet search engines in China, explores two types of movements, “converging curve” and “tracing curve” named by this research group, which really act in a regular pattern. In the research, by applying scores of mathematical methods, we found that the key to converging curves is to spot the invariant elements from the changeful motions. For tracing curves, we adopt estimating equations to get the solution. Due to the limit of time and the relevant knowledge of the research group, many unexpected problems constantly appeared which are quite far beyond our ability. Yet we still tried to apply some promising mathematical thoughts, and have achieved some exciting results. In the process of discovering and rediscovering, we did not succeed in finding a perfect solution to the problem. After all, as a group of middle school students fascinated by mathematics, creating and discovering more are the greatest delight of us all.