

**摘要:** 导数知识是高中数学新教材新增内容之一, 导数具有丰富的物理背景和广泛的应用价值, 是研究函数问题最重要的工具。在全国三卷高考导数试题中主要包含了函数单调性、极值、零点、不等式等问题, 其中在研究函数单调性、极值、零点、不等式等方面的问题中导数具有重要的作用。学生在解答这些相关问题时运用定义法只能讨论简单的函数单调性、极值、零点问题, 而运用导数研究能使问题简单化, 在使用初等方法证明初等不等式时, 会出现很难证明或证明不出来这些情况。那么, 引入导数, 就会让初等不等式的证明思路变得清晰, 证明步骤变得简单。初等不等式证明方法多种多样, 导数是其中一个有效且重要的工具。论文具体从用导数求函数的单调性, 极值, 零点、用导数分析含参数的单调性, 极值, 零点及知函数的单调性用导数求参数范围和单调性在不等式证明中的应用作了初步探究, 叙述了利用导数的定义、函数的单调性等方法来证明初等不等式, 指出了上述方法的操作步骤和范围, 并总结了证明方法的一般原理。本论文主要通过对全国三卷试题的分析, 抛砖引玉得出相应的解题思路帮助学生更容易的掌握导数在高考试题中的应用, 帮助学生更快、更好地分析导数的相关知识。

**关键词:** 高考导数; 函数; 单调性; 不等式; 解题策略

**Abstract:** Derivative knowledge is one of the new content of new high school mathematics textbooks. Derivative has rich physical background and extensive application value, and it is the most important tool to study function problems. In the three volumes of the national college entrance examination, the function monotonicity, extreme value, zero point, inequality and other problems, which plays an important role in studying the problems of function monotonicity, extreme value, zero point, inequality and so on. When students answer these related questions, the use of definition method can only discuss simple function monotonicity, extreme value, zero point problems, and the use of derivative research can simplify the problem, in the use of the primary method to prove the primary inequality, it will be difficult to prove or not to prove these situations. Then, introducing derivatives makes the proof idea of the elementary inequality clear and the proof step simple. There are various methods of elementary inequality proof, and derivatives are an effective and important tool. From the application of derivative monotonicity, extreme value, zero, derivative analysis including parameter monotony, extreme value, zero and known function, describes the definition of the derivative, function to prove the elementary inequality, points out the operation steps and range, and summarizes the general principle of proof method. This paper mainly through the analysis of the national three volumes of questions, the

corresponding ideas to help students more easily master the application of derivative in the exam, help students to analyze the derivative knowledge faster and better. (文章服务: 17628299927) V同号

**Key words:** college entrance examination derivative; function; monotonicity; inequality; problem solving strategy

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