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The effect of arrow diagrams on achievement in applying the chain rule.

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Summary: In this study the effectiveness of an arrow diagram which can help students apply the Chain Rule was investigated. Different variations of this diagram were used as mnemonic devices for applying the Chain Rule. For the investigation two instruments were developed, diagnostic test and post-test. The diagnostic test was developed to determine the students' difficulties with the Chain Rule and to create matched groups. It was administered to 76 students taking the Advanced Calculus Course. By matching according to the results of the diagnostic test, the sample of 24 pairs of subjects is obtained. The results of the post-test, administered after the teaching program, indicated that the arrow diagram had positive effects on applying the Chain Rule.

Classification: I45

Keywords: arrow diagram; calculus; chain rule; mnemonic device; partial derivative

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