

FALL 2019 QUIZ 5

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The problems that follow illustrate the methods covered in class. They are typical of the types of problems that will be on the tests.

Problem 1. State the **Mean Value Theorem**. How is this theorem used in solving equations?

Problem 2. State the **Intermediate Value Theorem**. How is this theorem used in solving equations?

Problem 3. Give the **Taylor Expansion** of the function $f(x)$ centered at $x = a$. How is this expansion used in understanding the **Newton Method**?

Problem 4. State and prove the **Fixed-Point Iteration Theorem**. How is this theorem used in solving an equation of the form $f(x) = x$?