


## Solving a Nonlinear Equation: Newton's Method

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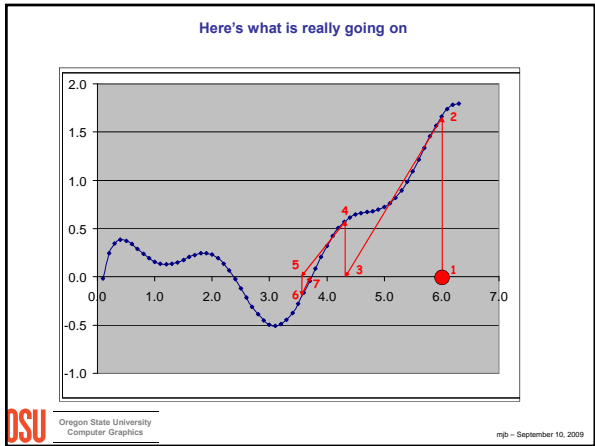
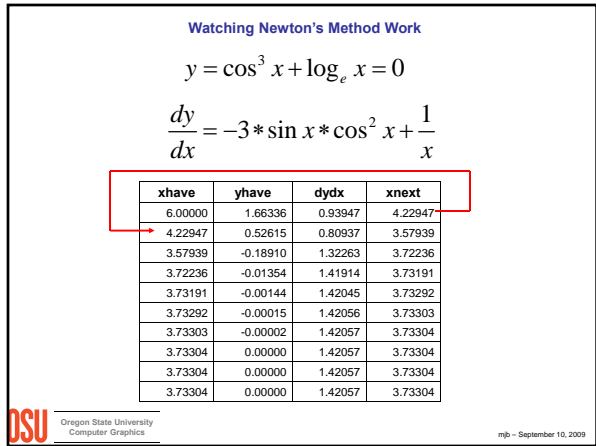
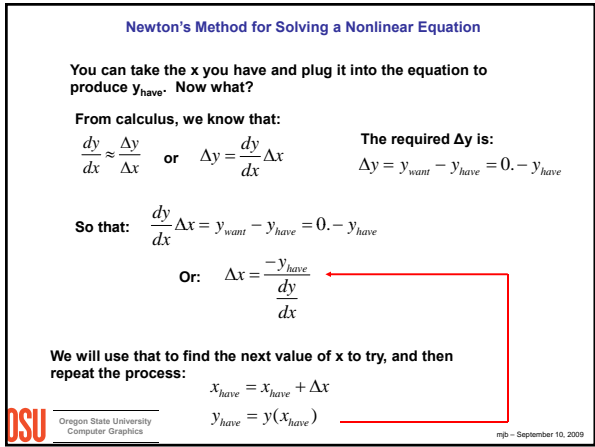
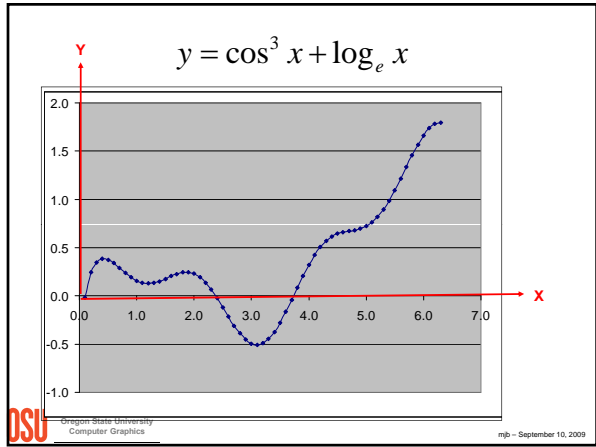
### Newton's Method for Solving a Nonlinear Equation

**Scenario:** Have an equation  $y(x) = 0$ , but it is too messy to solve directly. You do have an initial guess at the correct value of  $x$ . It is close, but wrong. For example, solve:

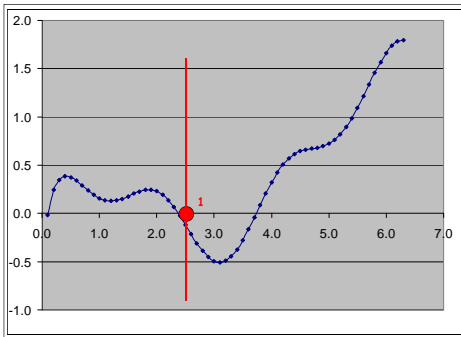
$$y(x) = \cos^3 x + \log_e x = 0$$

Starting with  $x=6$

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What would have happened if we had started with  $x=2.5$ ?

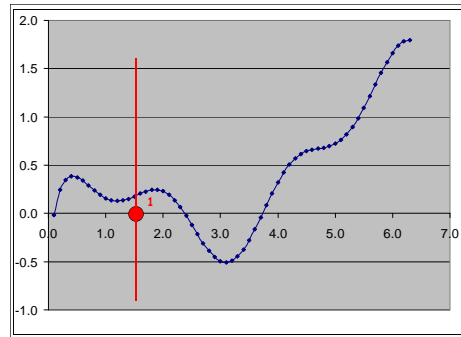


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What would have happened if we had started with  $x=1.5$ ?



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