

(\*Example HOMEWORK for PHY 711

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Problem Set 0

The purpose of this problem set is to become familiar with the use of Maple, Mathematica, or Wolfram Alpha as a tool for analyzing

mathematically complex problems. Choose one of the tools to visualize and solve the following problems.

1. Numerically find the values of  $x$  which satisfy the following equation.

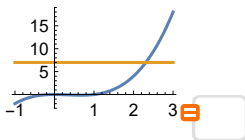
$x^3 - x^2 = 7$ . Use graphics to help visualize the problem. \*)

(\* 2.  $\int_0^x e^{-s^2} ds$

$\int_0^x e^{-s^2} ds$ . Use graphics to help you visualize the integrand and the integral. \*)

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In[ ]:= Plot[{x^3 - x^2, 7}, {x, -1, 3}]



In[ ]:= NSolve[x^3 - x^2 == 7, x]

Out[ ]:=

{x → -0.655426 - 1.61233 i}, {x → -0.655426 + 1.61233 i}, {x → 2.31085}

Integrate[Exp[-s^2], {s, 0, x}]

Out[ ]:=

{(1/2) Sqrt[Pi] Erf[x], {}}

In[ ]:=

Plot[{Exp[-u^2], (1/2) Sqrt[Pi] Erf[u]}, {u, 0, 5}]

Out[ ]:=

