

Additional Questions for Homework on Section 2.5.

For each of the following, can the Intermediate Value Theorem be applied on the following function with the associated interval and given target value  $y_0$ ? Explain why or why not.

A.  $f(x) = x^3 + x$  on  $[0, 2]$  with  $y_0 = 8$

B.  $g(x) = \sin x$  on  $[0, \pi]$  with  $y_0 = 0.3$

C.  $h(x) = \tan x$  on  $[0, \pi]$  with  $y_0 = 1$

D.  $f(x) = \cos(x^2)$  on  $[0, \sqrt{\pi}]$  with  $y_0 = -0.6$

E.  $g(x) = \begin{cases} 2x & \text{if } x < 1 \\ 1 & \text{if } x \geq 1 \end{cases}$  on  $[0, 1]$  with  $y_0 = 0.5$