Métodos numéricos - Tarea 1

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1. **Find intervals containing solutions to the following equations.**

   a) $x - 2^{-x} = 0$

   b) $2xcos(2x) - (x+1)^2$

2. **Find**

$$\max_{a \le x \le b} f(x) \qquad \min_{a \le x \le b} f(x) \qquad \max_{a \le x \le b} |f(x)|$$

   for the following functions and intervals

   a) $f(x) = \frac{2 - e^x + 2x}{3}$ $\qquad [0, 1]$

   b) $f(x) = \frac{4x-3}{x^2-2x}$ $\qquad [0.5, 1.5]$

3. **Suppose** $f \in C[a, b]$ **and** $x_1, x_2 \in [a, b]$**. Show that exist a number** ξ **between** x_1 **and** x_2 **such that:**

$$f(\xi) = \frac{f(x_1) + f(x_2)}{2}$$