Use the Intermediate Value Theorem to prove that there exists a solution of the equation $2x^3 - 4x^2 + 3x - 5 = 0$ for $x \in [1, 2]$.

**Solution:** To do this, we define the function

$$f(x) = 2x^3 - 4x^2 + 3x - 5.$$ 

Since $f(x)$ is continuous for $x \in [1, 2]$, and also there exists two points on the graph of $y = f(x)$:

- $(1, -4)$ with a negative $y$-coordinate;
- $(2, 1)$ with a positive $y$-coordinate,

by the Intermediate Value Theorem, $f(c) = 0$ for some $c \in (1, 2)$, which means the original equation $2x^3 - 4x^2 + 3x - 5 = 0$ has a solution $x = c$ in the following open interval: $(1, 2)$. 
