

1. Let $f(x) = 14 \sin(3x) + 2x^2 - 4x^3$.

(a) Use the IVT to show that $f(x)$ has a root between $x = -2$ and $x = 2$.

(b) Use the IVT to show that $f(x)$ has a stationary point between $x = -1$ and $x = 0$.

2. Let $f(x) = \frac{1}{x-2}$.

(a) Use the IVT to show that $f(x)$ has a root between $x = 1$ and $x = 3$.

(b) Find the exact value of the root by solving $f(x) = 0$. What goes wrong?

(c) Reconcile your answers to parts (a) and (b).