Solutions

Each answer shows the steps, then the **result**.

2.1

- if f is continuous on $[a, b]$ and N lies between $f(a)$ and $f(b)$, then $f(c) = N$ for some c in (a, b)

2.2

- it must be continuous on $[a, b]$

2.3

- yes — f is continuous and changes sign, so by the IVT there is a zero in $(1, 3)$

3.1 B

3.2 B

3.3

(a)

- $f(0) = -5$, $f(4) = 3$

(b)

- it changes from negative to positive

(c)

- a zero (a c with $f(c) = 0$) in $(0, 4)$