AP Calculus
1.4 ws2 *name* ____________________*p*___

For #1-6, decide if the IVT guarantees the existence of a 'c' such that $f(c)$ equals a given output on the given interval.
If it does exist, find 'c'.

1. $f(x) = x^2 - 4x + 3$ on [2, 4], $f(c) = 0$

2. $f(x) = x^3 + 3x - 2$ on [1, 3], $f(c) = 0$

3. $f(x) = x^2 + x - 1$ on [0, 5], $f(c) = 26$

4. $f(x) = x^2 - 6x + 8$ on [1, 6], $f(c) = -2$

5. $f(x) = x^3 - x^2 + x - 2$ on [0, 3], $f(c) = 22$

6. $f(x) = \dfrac{x^2 + x}{x - 1}$ on [2.5, 4], $f(c) = 6$

7. Use the Intermediate Value Theorem to show that for all spheres with radii in the interval [0, 5], there is one with a volume of 275cm^3.

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