

Name _____ Score _____ Teacher _____ Date _____

Intermediate Value Theorem Applications

Check continuity on the closed interval, compare endpoint values with the target, and conclude only what the theorem guarantees.

1. The endpoints of $f(x)=x^2+15$ on $[-1,1]$ are both 16. Can IVT guarantee a point with $f(c)=17$?

2. Let $f(x)=x+12$ for $x\leq 1$ and $2x+11$ for $x>1$. Use IVT on $[0,2]$ for target 13.

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3. For $f(x)=1/(x-16)$, can IVT on $[15,17]$ guarantee $f(c)=0$?

4. For $f(x)=1/(x+10)$, use IVT on $[0,1]$ for target 0.0955.

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Check continuity on the closed interval, compare endpoint values with the target, and conclude only what the theorem guarantees.

5. Let $f(x)=x$ for $x<0$ and $x+20$ for $x\geq 0$. Can IVT on $[-1,1]$ guarantee $f(c)=0$?

6. For $f(x)=x^2+13$, use IVT on $[0,3]$ to decide whether $f(c)=15$ is guaranteed.
