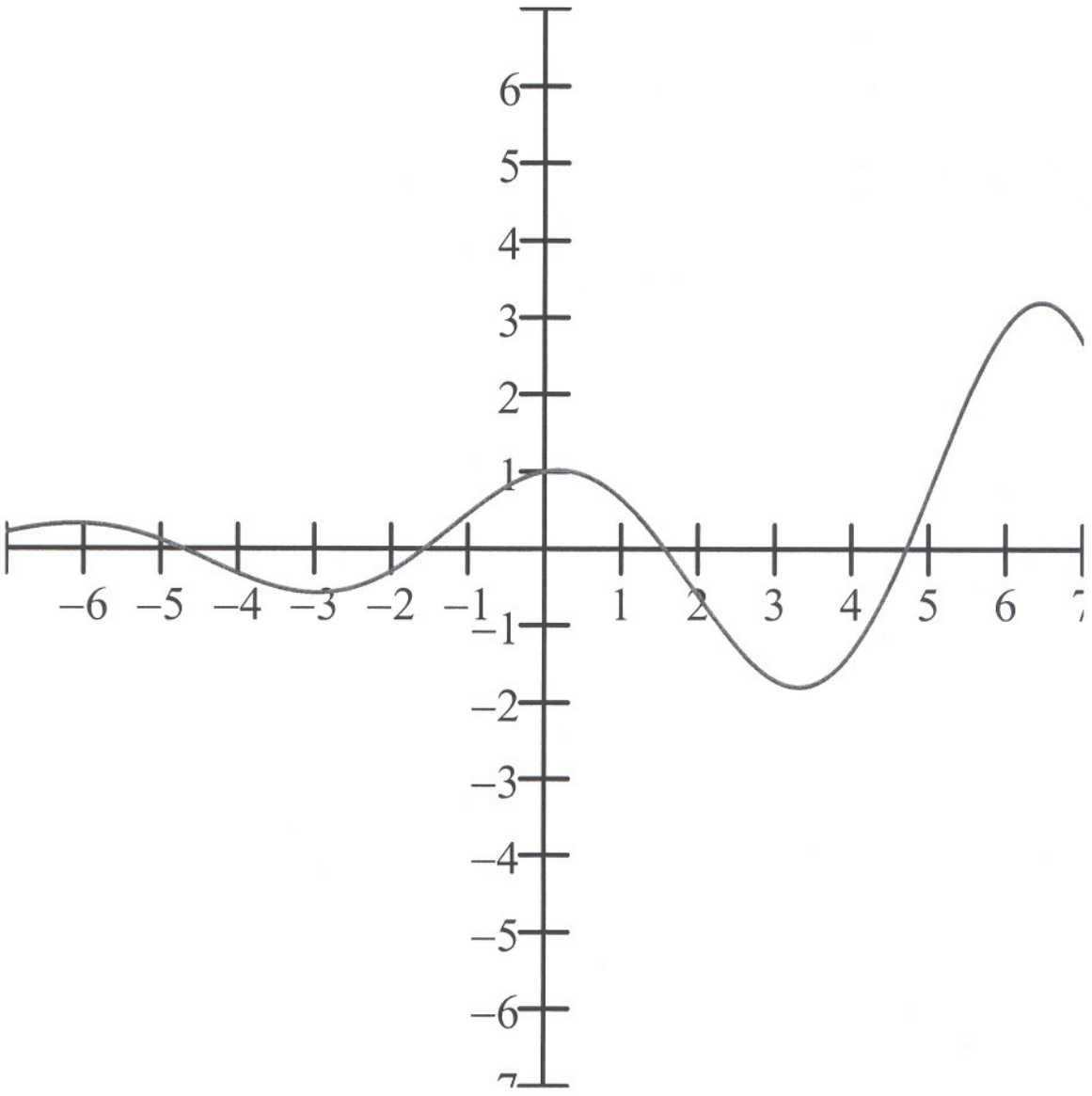
TUTORS: THIS IS A TAKE HOME QUIZ

Using Newton's method to solve $f(x) = 0$ for the function shown below, find an approximate value of x_2 [a] if $x_0 = 6$, and [b] if $x_0 = 0.5$.



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Using Newton's method (without your calculator) to solve $x^2 + 4 = 6x$, find an approximate value of x_2 [a] if $x_0 = 4$, and [b] if $x_0 = 2$. **You must show all relevant values that were calculated.**

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Evaluate the following limits.

[a] $\lim_{x\to 0} \dfrac{\arctan x}{e^{2x} - 1}$

[b] $\lim_{x\to 1} \dfrac{\ln x}{\sin \pi x}$

[c] $\lim_{x\to 2} \dfrac{x^4 - 3x^2 - x - 4}{x^3 - 3x^2 + 8}$

[d] $\lim_{x\to 0} \dfrac{x \sin x}{1 - \cos x}$

[e] $\lim_{x\to 0} x \cot 3x$

[f] $\lim_{x\to 0+} \left(\dfrac{1}{x} - 1\right)^x$

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