

03-07-Newton's Method**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

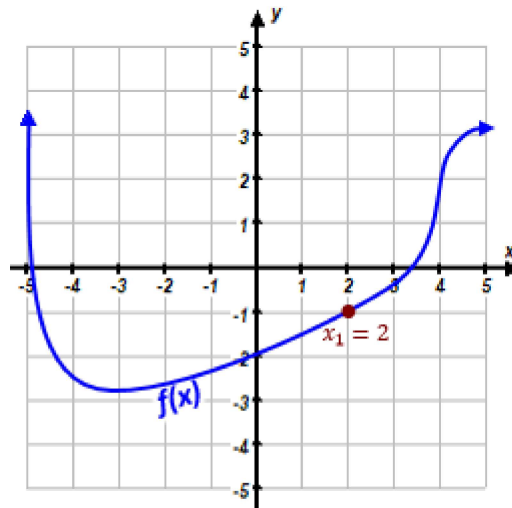
_____ 1. Consider the function $f(x) = x^3 - 4x + 1$. Use Newton's method to find the 3rd approximation iteration of where $f(x) = 0$ starting with the initial approximation $x_1 = 3$ (i.e. find x_3).

- | | |
|------------------------|------------------------|
| a. $x_3 \approx 1.860$ | d. $x_3 \approx 1.896$ |
| b. $x_3 \approx 1.861$ | e. $x_3 \approx 1.967$ |
| c. $x_3 \approx 1.870$ | f. $x_3 \approx 2.304$ |

_____ 2. Consider the function $f(x) = e^x + x$. Use Newton's method to find the 3rd approximation iteration of where $f(x) = 0$ starting with the initial approximation $x_1 = 1$ (i.e. find x_3).

- | | |
|--------------------------|--------------------------|
| a. $x_3 \approx -0.5000$ | d. $x_3 \approx -0.5782$ |
| b. $x_3 \approx -0.5125$ | e. $x_3 \approx 0$ |
| c. $x_3 \approx -0.5671$ | f. $x_3 \approx 1$ |

_____ 3. Consider the function $f(x)$ shown in the graph. Use Newton's method to find the most likely 2nd approximation iteration of where $f(x) = 0$ starting with the initial approximation $x_1 = 2$ (i.e. find x_2).

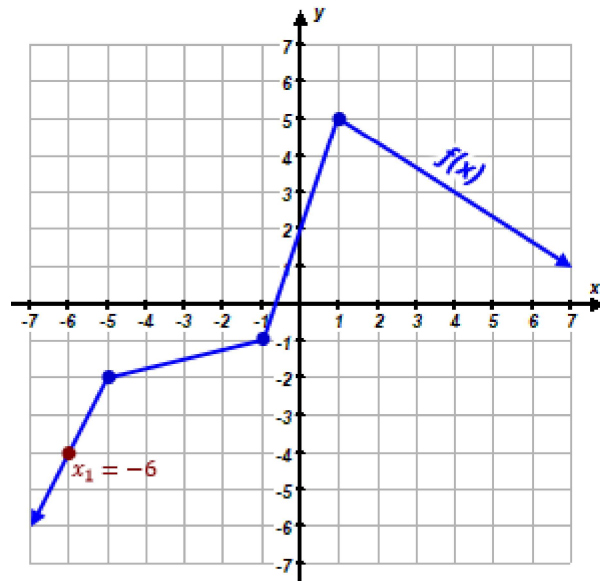


- | | |
|-----------------------|----------------------|
| a. $x_2 \approx -1.0$ | d. $x_2 \approx 3.4$ |
| b. $x_2 \approx 0.0$ | e. $x_2 \approx 4.0$ |
| c. $x_2 \approx 2.0$ | f. $x_2 \approx 5.5$ |

4.

Consider the function $f(x)$ shown in the graph. Use Newton's method to find the most likely 3rd approximation of where $f(x) = 0$ starting with the initial approximation $x_1 = -6$

(i.e. find x_3).



- a. $x_3 = -6$
- b. $x_3 = -4$
- c. $x_3 = -1.5$

- d. $x_3 = 2$
- e. $x_3 = 3$
- f. $x_3 = 8.5$

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Answer Section

MULTIPLE CHOICE

- | | | |
|-----------|--------|-------------------------|
| 1. ANS: E | PTS: 1 | REF: Matt's Math Labs © |
| 2. ANS: A | PTS: 1 | REF: Matt's Math Labs © |
| 3. ANS: E | PTS: 1 | REF: Matt's Math Labs © |
| 4. ANS: E | PTS: 1 | REF: Matt's Math Labs © |