

Name: \_\_\_\_\_ Score: \_\_\_\_\_

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## Newton's method

For questions 1 & 2 use Newton's Method to determine  $x_2$  for the given function and given value of  $x_0$ .

1.  $f(x) = x^3 - 7x^2 + 8x - 3, x_0 = 5$

2.  $f(x) = x \cos(x) - x^2, x_0 = 1$

For problems 3 & 4 use Newton's Method to find the root of the given equation, accurate to six decimal places, that lies in the given interval.

3.  $x^4 - 5x^3 + 9x + 3 = 0$  in  $[4, 6]$

4.  $2x^2 + 5 = e^x$  in  $[3, 4]$

For questions 5 & 6, use Newton's Method to find all the roots of the given equation accurate to six decimal places.

5.  $x^3 - x^2 - 15x + 1 = 0$

6.  $2 - x^2 = \sin(x)$