AP Calculus AB: Max & Min AP Problems

Do not use a calculator for questions 1-3.

1. For what value of x does the function $f(x) = x^3 - 9x^2 - 120x + 6$ have a local minimum?

   A) 10   B) 4   C) 3   D) -4   E) -10

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2. Find a positive value of c, for x, that satisfies the conclusion of the Mean Value Theorem for Derivatives for $f(x) = 3x^2 - 5x + 1$ on the interval [2,5].

   A) 1   B) $\dfrac{13}{6}$ C) $\dfrac{11}{6}$ D) $\dfrac{23}{6}$ E) $\dfrac{7}{2}$

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3. Given $f(x) = 2x^2 - 7x - 10$, find the absolute maximum of $f(x)$ on [-1,3].

   A) -1   B) $\dfrac{7}{4}$ C) –13   D) $\dfrac{-129}{8}$ E) 0

You may use a calculator for problems 4-6.

4. The graph of $y = x^3 - 5x^2 + 4x + 2$ has a local minimum at

   A) (0.46, 2.87)   B) (0.46, 0)   C) (2.87, -4.06)   D) (4.06, 2.87)   E) (1.66, -0.59)

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5. The graph of $y = 5x^4 - x^5$ has an inflection point (or points) at

   A) x = 0 only   B) x = 3 only   C) x = 0, 3   D) x = -3 only   E) x = 0, -3

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6. The graph of $y = x^3 - 2x^2 - 5x + 2$ has a local maximum at

   A) (2.120, 0)   B) (2.120, -8.061)   C) (-0.786, 0)   D) (-0.786, 4.209)   E) (0.666, -1.926)

You may use a calculator for the free response question. On a separate sheet of paper show all your work and turn this in after you have completed the Quia quiz/practice.

Consider the curve defined by $y = x^4 + 4x^3$.

    A) Find the equation of the tangent line to the curve at x= -1
    B) Find the coordinates of the absolute minimum.
    C) Find the coordinates of the point(s) of inflection.