Calculus III

Print Name: _____

1. (2 pts) Let $f(x)$ be a function and let $P_5(x)$ be the 5'th Taylor polynomial centered at a.

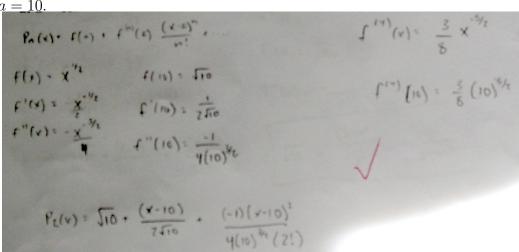Which of the following is true about approximation $f(x) \approx P_5(x)$.

a) $|P_5^{(10)}(x)| \leq |f^{(10)}(x)|$ b) $P_5^{(2)}(x) = f^{(2)}(x)$

c) $P_5^{(10)}(a) = f^{(10)}(a)$ d) none of these

$[P_5^{(10)}(x) = 0.]$

2. (2 pts) Which of the following functions has Taylor Series $\displaystyle\sum_{k=0}^{\infty} \frac{(-1)^{k+1}x^k}{k!}$

a) e^x b) e^{-x}

c) $-e^{-x}$ d) $|e^x|$

3. (4 pts) Find the second Taylor Polynomial $P_2(x)$ for the function $f(x) = \sqrt{(x)}$ centered at $a = 10$.

Thanks to Brandon Bozeat.

4. (2 pts) Give the remainder for the approximation in Problem 2 for $\sqrt{110}$.

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