

4. Find equations of the *tangent line* and the *normal line* to the graph of $f(x) = e^{2x} + 3\cos x$ at the point $P(0, 4)$. (10 points)

5. Let $f(x) = x^3 + 2x$. Solve the following. (5 points each)

A. Show that f satisfies the hypotheses of the Mean Value Theorem on the interval $[0, 2]$.

B. Show that f satisfies the conclusion of the Mean Value Theorem on the interval $[0, 2]$.

6. Find the absolute maximum and absolute minimum of $f(x) = 3x^{\frac{2}{3}} - x$ on the interval $[0, 27]$. (10 points).

Absolute maximum _____

Absolute minimum _____