

6. [5 points] For the function $f(x) = \cos(\sin(x))$, find $P_2(x)$, the Taylor polynomial of degree 2 for $f(x)$ centered about $x = \pi$. Show all your work.

Answer: $P_2(x) =$ _____

7. [9 points] Consider the function $g(x) = 3x \sin\left(\frac{x^3}{2}\right)$.

- a. [5 points] Give the first three nonzero terms of the Taylor series for $g(x)$ centered about $x = 0$. Show all your work.

Answer: _____

- b. [4 points] The function $g(x)$ has a continuous antiderivative, $G(x)$, with a Taylor series that converges for all x . Given that $G(0) = 2$, find the first four non-zero terms of the Taylor series for $G(x)$ centered about $x = 0$. Show all your work.

Answer: _____