Name: _____

Quiz 9

MATH 200
February 17, 2022

1. (5 points) In this problem $y = x^2 + e^x$.

   (a) $\dfrac{dy}{dx} =$

   (b) $\dfrac{d^2y}{dx^2} =$

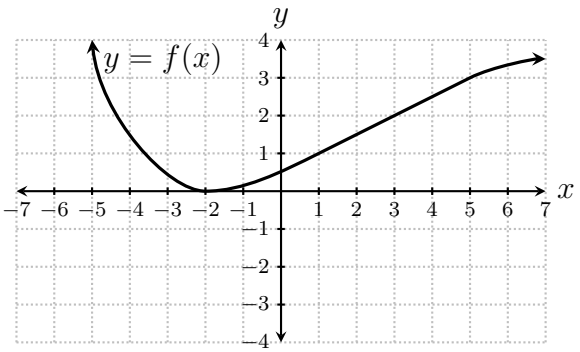
   (c) $\dfrac{d^3y}{dx^3} =$

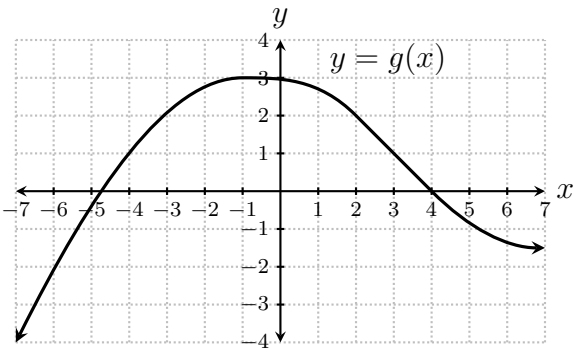
2. (10 points) This problem concerns the function $f(x) = \sin\left(x^2\right)$.

   (a) Find $f'(x)$.

   (b) Find the equation of the tangent line to the graph of $y = f(x)$ at the point $\left(\sqrt{\pi}, f(\sqrt{\pi})\right)$.

3. (5 points) Two functions $f(x)$ and $g(x)$ are graphed below. Suppose $h(x) = f\big(g(x)\big)$. Find $h'(3)$. Please show your work carefully.





Name: _____

Quiz 9

MATH 200
February 17, 2022

1. (5 points) In this problem $y = 2x + \cos(x)$.

   (a) $\dfrac{dy}{dx} =$

   (b) $\dfrac{d^2y}{dx^2} =$

   (c) $\dfrac{d^3y}{dx^3} =$

2. (10 points) This problem concerns the function $f(x) = \sin(\pi e^x)$.

   (a) Find $f'(x)$.

   (b) Find the equation of the tangent line to the graph of $y = f(x)$ at the point $\big(0, f(0)\big)$.

3. (5 points) Two functions $f(x)$ and $g(x)$ are graphed below. Suppose $h(x) = f\big(g(x)\big)$. Find $h'(3)$. Please show your work carefully.