

Math 181 Quiz II

① Find the limit

$$\lim_{h \rightarrow 0} \frac{\sin(h^2 + 5h)}{2h}$$

② Let f and g be continuous and differentiable functions. Use the limit laws to show that fg is differentiable and $(fg)'(x) = f'(x)g(x) + f(x)g'(x)$.

③ If $f(x) = 3 \sin x$ find $f'(x)$.

④ If $g(x) = x^4 + x^7$ find $g'(x)$.

⑤ If $w(x) = x^2 \cos x$ find $w'(\pi/6)$.