

6. Let $f(x) = \sin x$ where x is in *degrees*.

(a) (4 points) Write down a formula for $f'(180)$ using the *limit* definition of the derivative.

(b) (3 points) Use the *limit* definition to approximate $f'(180)$ to 3 decimals. Show how you obtained your answer.

(c) (2 points) What is the exact value of $f'(90)$? Justify your answer geometrically.

(d) (2 points) Let $g(x) = \sin x$ where x is in radians. Determine a continuous function $h(x)$ such that for all x , $f(x) = g(h(x))$.