

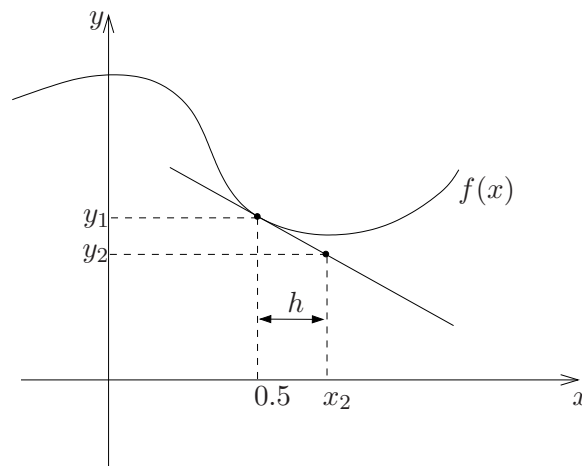
7. (7 points) Use the function

$$g(x) = x^{\sin(x)}$$

to give the *limit definition* for  $g'(2)$  [No need to simplify or approximate the limit.]

$$g'(2) = \lim_{h \rightarrow 0} \frac{(2+h)^{\sin(2+h)} - 2^{\sin(2)}}{h}$$

8. (7 points) The figure below shows  $y = f(x)$  and a line tangent to  $f$  at  $x = 0.5$ . Given that  $f(0.5) = 2$ ,  $f'(0.5) = -3$ , and  $h = 0.1$ , determine the values of  $y_1$ ,  $y_2$ , and  $x_2$ . [Note:  $x$  and  $y$  are different scales on the graph.]



$$y_1 = \underline{\quad 2 \quad}$$

$$y_2 = \underline{\quad 1.7 \quad}$$

$$x_2 = \underline{\quad 0.6 \quad}$$