

Quiz 8

1. $f = \frac{3}{x} + 4$, so

$$(a) f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h} =$$

$$\lim_{h \rightarrow 0} \frac{\left(\frac{3}{x+h} + 4\right) - \left(\frac{3}{x} + 4\right)}{h}$$

$$\lim_{h \rightarrow 0} \frac{\frac{3}{x+h} + 4 - \frac{3}{x} - 4}{h} =$$

$$\lim_{h \rightarrow 0} \frac{\frac{3}{x} - 3 \frac{h}{x(x+h)}}{h} = \lim_{h \rightarrow 0} \frac{-3h}{h x(x+h)} = \frac{-3}{x^2}$$

(b) $m = f''(1) = -3$

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