

2) Suppose $f(x)$ and $g(x)$ are continuous functions and $f(8) = 5$. If you know $\lim_{x \rightarrow 8} [6f(x) - g(x)] = 10$, find $g(8)$. If it is not possible, explain why.

Since $f(x)$ and $g(x)$ are continuous we know that

$$\lim_{x \rightarrow 8} f(x) = f(8)$$

$$\lim_{x \rightarrow 8} g(x) = g(8)$$

$$\lim_{x \rightarrow 8} [6f(x) - g(x)] = 10$$

$$\lim_{x \rightarrow 8} 6f(x) - \lim_{x \rightarrow 8} g(x) = 10$$

$$6 \lim_{x \rightarrow 8} f(x) - \lim_{x \rightarrow 8} g(x) = 10$$

$$6f(8) - g(8) = 10$$

$$6(5) - g(8) = 10$$

$$30 - 10 = g(8)$$

$$g(8) = 20$$