

Section 3 quiz #3

Given $\lim_{x \rightarrow 4} f(x) = 4$ $\lim_{x \rightarrow 4} g(x) = 0$ $\lim_{x \rightarrow 4} h(x) = 5$

Find the limit if it exists. If it does not exist, explain why.

① $\lim_{x \rightarrow 4} (f(x) + 5g(x)) = 4 + 5 \cdot 0 = 4$

② $\lim_{x \rightarrow 4} (f(x))^2 = 4^2 = 16$

③ $\lim_{x \rightarrow 4} \left(\frac{5g(x)f(x)}{h(x)} \right) = \frac{5 \cdot 0 \cdot 4}{5} = 0$

④ $\lim_{x \rightarrow 4} \frac{f(x) + h(x)}{g(x)} = \frac{4+5}{0}$ DNE because $\lim_{x \rightarrow 4} g(x) = 0$
so we get division by 0

⑤ $\lim_{x \rightarrow 4} \sqrt{f(x)} = \sqrt{4} = 2$