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Evaluate the following limits algebraically. Show all algebraic work.

[a] $\lim_{x\to 2}\dfrac{x^3-8}{x^2-4}$ **TUTORS: THIS IS A TAKE HOME QUIZ**

[b] $\lim_{x\to -1}\dfrac{x^3+1}{x^2-1}$ **TUTORS: THIS IS A TAKE HOME QUIZ**

[c] $\lim_{x\to 5}\dfrac{3x-15}{\sqrt{x-1}-2}$ **TUTORS: THIS IS A TAKE HOME QUIZ**

[d] $\lim_{x\to 8}\dfrac{2x-16}{\sqrt{x+1}-3}$ **TUTORS: THIS IS A TAKE HOME QUIZ**

[e] $\lim_{x\to 3}\dfrac{\frac{1}{x^2}-\frac{1}{9}}{\frac{1}{x}-\frac{1}{3}}$ **TUTORS: THIS IS A TAKE HOME QUIZ**

[f] $\lim_{x\to 2}\dfrac{\frac{1}{x^2}-\frac{1}{4}}{\frac{1}{x}-\frac{1}{2}}$ **TUTORS: THIS IS A TAKE HOME QUIZ**

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Give an example of functions f and g such that $\lim_{x\to 0}\dfrac{f(x)}{g(x)}$ exists, but $\lim_{x\to 0} f(x)$ and $\lim_{x\to 0} g(x)$ do not exist.

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