PRACTICE QUIZ 13

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Time: 10 min
Time to beat: ? min

Problem 1. Find the limit $\lim_{x\to -3}\frac{x^3+27}{x+3}$. (Hint: $a^3+b^3=(a+b)(a^2-ab+b^2)$).

Problem 2. Find the limit $\lim_{x\to 1}\frac{x^2-1}{\sqrt{x}-1}$.

Problem 3. Find the left-sided limit $\lim_{x\to 1^-}\frac{x^2-1}{|x^3-x^2|}$.

Problem 4. For the function

$$f(x)=\begin{cases}\frac{17}{5}-\frac{1}{5}x & \text{if } x<-3\\ 5(x+3)^2-1 & \text{if } -3\le x<2\\ 10x+105 & \text{if } x\ge 2\end{cases}$$

determine if f is continuous at $x=-3$ and $x=2$.