

AS YOU WILL SEE FROM THE SOLUTIONS:  
THERE WAS A SLIGHT TYPO IN THE QUIZ  
THAT YOU GOT, MAKING A QUESTION  
MORE DIFFICULT THAN INTENDED

NOTE: CONJUGATE OF  $\sqrt{x} - 3$   
IS  $\sqrt{x} + 3$

CONJUGATE OF  $\sqrt{x-3}$   
IS NOT  $\sqrt{x+3}$

HERE IS THE ANSWER

$$\lim_{x \rightarrow 9} \frac{\sqrt{x-3}}{x^2-81}$$

$$= \lim_{x \rightarrow 9} \frac{\sqrt{x-3}}{x^2-81} \cdot \frac{\sqrt{x-3}}{\sqrt{x-3}}$$

$$= \lim_{x \rightarrow 9} \frac{x-3}{(x+9)(x-9)\sqrt{x-3}}$$

NOTHING SIMPLIFIED  
ANY FURTHER MUST  
USE NUMERICAL ANALYSIS

FROM LEFT	8.9	8.99	8.999	→ -∞
f(x)	-1.35	-13.6	-136.08	

FROM RIGHT	9.1	9.01	9.001	→ ∞
f(x)	1.36	13.6	136.08	

LIMIT DNE ; LIMIT FROM LEFT → -∞  
LIMIT FROM RIGHT → ∞