

Solutions

No Work = No Credit. Write Legibly. Box your final result.

1. 10 points Evaluate the limit, if it exists.

$$\begin{aligned}\lim_{x \rightarrow 9} \frac{x^2 - 81}{\sqrt{x} - 3} &= \lim_{x \rightarrow 9} \frac{(x - 9)(x + 9)}{\sqrt{x} - 3} \\ &= \lim_{x \rightarrow 9} \frac{(\sqrt{x} - 3)(\sqrt{x} + 3)(x + 9)}{\sqrt{x} - 3} \\ &= \lim_{x \rightarrow 9} (\sqrt{x} + 3)(x + 9) \\ &= \boxed{108}\end{aligned}$$