

# Solutions

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

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

$$\begin{aligned}\lim_{h \rightarrow 0} \frac{(1+h)^4 - 1}{h} &= \lim_{h \rightarrow 0} \frac{[(1+h)^2 - 1][(1+h)^2 + 1]}{h} \\ &= \lim_{h \rightarrow 0} \frac{[h^2 + 2h][(1+h)^2 + 1]}{h} \\ &= \lim_{h \rightarrow 0} [h + 2][(1+h)^2 + 1] \\ &= \boxed{4}\end{aligned}$$