

Math 141 Do these two problems below.

1. Use a calculator to fill in the chart and guess the value of $\lim_{x \rightarrow 0} \frac{1 - \cos x}{x^2}$

x	$\frac{1 - \cos x}{x^2}$
.1	
.01	
.001	
.0001	
10^{-5}	
10^{-6}	
10^{-7}	
10^{-8}	
10^{-9}	
10^{-10}	

2. Let $f(x) = \begin{cases} x^2, & \text{if } 0 \leq x \leq 2 \\ m(x-2) + b, & \text{if } 2 < x \leq 3 \end{cases}$ Find all values of m and b that make $\lim_{x \rightarrow 2} f(x)$ exist.