

Math 235: Maple Homework Sheet (Week 2)

You should work in groups of two or three **with each name listed on each worksheet** (and each person submits a copy of the worksheet). Upload the Maple worksheet (the file ends in .mw) to your CLEO dropbox (Make a new folder called Week 2).

DUE: Before next week's class- Either Jan 31 (for Tuesdays) or Feb 2 (for Thursdays).

1. Biologists have observed that the chirping rate of crickets of a certain species appears to be related to temperature. The table below shows the chirping rates for various temperatures.

Temp	50	55	60	65	70	75	80	85	90
Chirps/min	20	46	79	91	113	140	173	198	211

- (a) Make a scatter plot of the data.
- (b) Find and graph the line of best fit, $y = a + bt$.
- (c) Use the line of best fit to estimate the chirp rate at 100°F

Hint: Follow the example on pg. 9 of the Maple tutorial.

2. Have Maple compute the following limits (see the limit commands on p. 7)

- (a) $\lim_{x \rightarrow \infty} \frac{2x^2 - 3x + 17}{x^2 + 19x + 25400}$

- (b) $\lim_{x \rightarrow -\infty} xe^{-x}$

- (c) $\lim_{x \rightarrow 0^+} \ln(x)$

3. We want to find the critical points of the function $g(x) = \sin(x) - x^2$. Use Maple to find the derivative and use `fsolve` to solve for the zeros. (See the Maple Tutorial) (NOTE: Use `fsolve` if you cannot get an exact solution).
4. Find the volume of the solid of revolution, if the area R is the area beneath the graph of $y = 1 - x^2$ and above $y = 0$ (so $0 \leq x \leq 1$), and we rotate R about the line $x = 3$.
Use Maple to draw the curve and compute the integral that you come up with. You may search online if you forgot how to do it.