

## Math 235: Maple Homework Sheet (Week 2)

You should work in groups of two or three **with each name listed on the 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: Next Wednesday, Feb 4, before class.**

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. In Calc 3, we learn how to find the equation of the tangent line to a curve given in parametric form. Find the line for the following set of functions, then plot the curve together with the tangent line:

$$x = t - t^{-1} \quad y = 1 + t^2 \quad t = 1$$

Hint:

Try to do it all in Maple- First, find the point and the slope of the line, then find the example in the Maple tutorial where we plot two parametric functions on the same graph.

3. Find the arc length for the following curve given in parametric form:

$$x = 1 + 3t^2 \quad y = 4 + 2t^3 \quad 0 \leq t \leq 1$$

Hint:

You can look up the formula for the arc length, but have Maple compute it.