# Trabalho de Fundamentos de Álgebra Linear

**33.** Find the interpolating polynomial $p(t) = a_0 + a_1 t + a_2 t^2$ for the data $(1, 6)$, $(2, 15)$, $(3, 28)$. That is, find $a_0$, $a_1$, and $a_2$ such that

$$a_0 + a_1(1) + a_2(1)^2 = 6$$
$$a_0 + a_1(2) + a_2(2)^2 = 15$$
$$a_0 + a_1(3) + a_2(3)^2 = 28$$

**34.** [M] In a wind tunnel experiment, the force on a projectile due to air resistance was measured at different velocities:

| | | | | | | |
|---|---|---|---|---|---|---|
| Velocity (100 ft/sec) | 0 | 2 | 4 | 6 | 8 | 10 |
| Force (100 lb) | 0 | 2.90 | 14.8 | 39.6 | 74.3 | 119 |

Find an interpolating polynomial for these data and estimate the force on the projectile when the projectile is traveling at 750 ft/sec. Use $p(t) = a_0 + a_1 t + a_2 t^2 + a_3 t^3 + a_4 t^4 + a_5 t^5$. What happens if you try to use a polynomial of degree less than 5? (Try a cubic polynomial, for instance.)[5]