

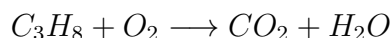
Applications of Systems of Linear Equations

Exercise 1: Find the equation of the parabola passing through the three points:

$$(1, 6), (-1, 12), (2, 9).$$

Write your answer in the form $y = ax^2 + bx + c$.

Exercise 2: Balance the chemical equation:



Exercise 3: NASA is planning a mission to Mars and their dieticians must design a food supplement that provides 120 mg of magnesium, 220 mg of Vitamin C and 620 mg of calcium. The three possible ingredients have:

	Ingredient 1	Ingredient 2	Ingredient 3
magnesium	10	30	20
Vitamin C	20	50	30
calcium	60	130	70

where these numbers are milligrams per unit of food. Is it possible to design such a supplement from these ingredients? If so, how much of each ingredient must be used?