

GUIDELINES FOR SOLVING “WORD PROBLEMS”

- Read carefully the statement of the problem. Read it again and write down **WHAT NEEDS TO BE FOUND**. Be very specific, do not write “time”, but rather “I need the time (in minutes) it takes the car to reach the border,” for example.
- Identify and give names to all relevant variables. Do this **IN COMPLETE WRITTEN FORM**. Identify what are the independent variables, what are the dependent ones.
- If there are units of measurement, make sure they are properly matched
- Translate the information given in words into mathematical formulas. Pay attention to the meaning of expressions such as (jointly, inversely) proportional to, etc.
- Read again what is asked. Then define **EXACTLY** what mathematical problem you will use to attempt finding the solution of the problem. For example, “I will find the absolute minimum of the function $R(s)$ for $-2 \leq s \leq 3$.”
- Review **IN WRITING** the steps necessary to do what you just said you would do. For example, in order to find the absolute maximum, you would write something such as “since the function $R(s)$ is differentiable for $-2 \leq s \leq 3$, I need to find all critical numbers in the interval $[-2, 3]$, that is those numbers s , $-2 \leq s \leq 3$, such that $R'(s) = 0$ or $R'(s)$ is undefined. Then I need to evaluate the function R at each of these critical numbers, as well as at $s = -2$ and $s = 3$, the endpoints of the interval. Finally, I will select among these values of R the smallest, which **IS** the absolute minimum of the function $R(s)$ in the interval $[-2, 3]$.”
- Do the necessary work to arrive at an answer (e.g. solve an equation or a system of equations, differentiate, etc.)
- Read once more what is asked and write a complete, clear, and correct answer (both grammatically and mathematically!).