

THE PROBLEM SOLVING COMPETITION

OCTOBER 12, 2007

Problem

Consider the equation $Ax^3 + (2 - A)x^2 - x - 1 = 0$, where A is a real number for which the equation has three real roots, not necessarily distinct. For certain values of A , there is a repeated root r and a distinct root s . List all such values of the triple (A, r, s) .