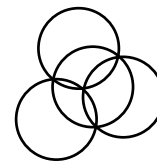


1. PROBLEMS ABOUT POLYNOMIALS

by Răzvan Gelca



a1. Solve the equation

$$(x+2)(x+4)(x+6)(x+8) = (x+2)^2 + (x+4)^2 + (x+6)^2 + (x+8)^2 + 5.$$

a2. Solve the equation

$$x^3 + (x+1)^3 + (x+2)^3 + (x+3)^3 = 0.$$

a3. Solve the equation

$$\frac{x^2}{a} + \frac{ab^2}{x^2} = 2\sqrt{2ab} \left(\frac{x}{a} - \frac{b}{x} \right)$$

where a, b are positive real numbers.

a4. Solve the equation

$$x^2 + 3x - 16 = \sqrt{4x^2 + 12x + 32}.$$

a5. Solve the equation

$$\frac{2x}{2x^2 - 5x + 3} + \frac{13x}{2x^2 + x + 3} = 6.$$