

Risolvere le seguenti equazioni di II grado frazionarie (ricordarsi di controllare l'accettabilità delle soluzioni)

$$97. \quad \frac{2}{x-1} + \frac{x+5}{x^2-1} = 2; \quad \frac{2}{x} + \frac{5x+2}{3x^2} - 2 = 0. \quad \left[-\frac{3}{2}, 3; -\frac{1}{6}, 2 \right]$$

$$98. \quad \frac{5}{x^2-4} + \frac{x+3}{x-2} = 7; \quad \frac{x+1}{x-1} + \frac{x+2}{x-2} = \frac{2x+13}{x+1}. \quad \left[-\frac{13}{6}, 3; \frac{6}{5}, 5 \right]$$

$$99. \quad \frac{x}{x-6} - \frac{1}{2} = \frac{x}{6} + \frac{x+6}{6-x}; \quad \frac{x-1}{x-3} - 4 = \frac{x+1}{2-x}. \quad \left[-3, 18; \frac{5}{2}, 5 \right]$$

$$100. \quad \frac{9-x}{x-5} + \frac{x+1}{x-3} = 3; \quad \frac{x+2}{1-x} + \frac{2}{x} = \frac{19}{2}. \quad \left[\frac{11}{3}, 7; \frac{1}{3}, \frac{4}{7} \right]$$

$$101. \quad \frac{x-1}{x-3} + \frac{14}{x^2-9} = 5; \quad \frac{1}{x^2} + \frac{1}{x(x-1)} = \frac{1}{(x-1)^2}. \quad \left[-\frac{7}{2}, 4; \frac{3 \pm \sqrt{5}}{2} \right]$$

$$102. \quad \frac{1}{2(x+1)} - \frac{x}{2(x-1)} = \frac{x+2}{x^2-1}; \quad \frac{2-x}{2(x+1)} = \frac{1}{x-1} - \frac{x^2+1}{x^2-1}. \quad [\text{Impossibile}; -2]$$

$$103. \quad \frac{1-x}{3-x} = \frac{1}{x+3} - \frac{x^2-1}{x^2-9}; \quad \frac{15}{x} = \frac{72-6x}{2x^2} + 2. \quad \left[\frac{1}{2}, -1; 6, 3 \right]$$

$$104. \quad \frac{2x+1}{7-x} + \frac{4x+1}{7+x} = \frac{45}{49-x^2} + 1; \quad \frac{x-5}{x+3} + \frac{33}{x^2-9} = \frac{8-x}{x-3} + \frac{1}{2}. \quad [2, 40; \text{impossibile}]$$

$$105. \quad \frac{2x+1}{x+1} - \frac{x-1}{x+2} = \frac{x-1}{x-2}; \quad \frac{2x+13}{x+1} - \frac{x+2}{x-2} = \frac{x+1}{x-1}. \quad \left[3 \pm \sqrt{13}; 5, \frac{6}{5} \right]$$

$$106. \quad \frac{x+6}{6-x} + \frac{1}{2} = \frac{x}{x-6} - \frac{x}{6}; \quad \frac{3x+11}{x+1} - \frac{2x-3}{x-2} = \frac{x+1}{x-1}. \quad \left[18, -3; 3, \frac{7}{5} \right]$$

$$110. \quad \left(x - \frac{1}{x-1} \right)^2 + \frac{2}{(x-1)^2} = \left(x - \frac{1}{x+1} \right) \left(x - \frac{1}{x-1} \right). \quad [1 - \sqrt{3}; 1 + \sqrt{3}]$$

$$111. \quad \frac{1}{1+x} + \frac{1}{1-x} + \frac{1}{(x+1)^2} + \frac{1}{(x-1)^2} = \frac{1}{x^2-1}. \quad [\pm\sqrt{5}]$$

$$113. \quad \frac{x-4}{x^2-5x+6} + \frac{1}{(2-x)(3-x)(4-x)} = \frac{x-2}{x^2-7x+12} + \frac{x-3}{x^2-6x+8}. \quad [1 \pm \sqrt{3}]$$

$$114. \quad \frac{x}{2(x^2-3x+2)} + \frac{2x-3}{(x-2)(x-3)(x-1)} = \frac{x}{x^2-4x+3}. \quad [\text{Impossibile}]$$

Risolvere, mediante scomposizione, le seguenti equazioni di grado superiore al II:

- 32.** $2x^3 - x^2 - 2x + 1 = 0$; $x^3 + x^2 - 4x - 4 = 0$. $\left[-1, 1, \frac{1}{2}; -2, -1, 2\right]$
- 33.** $t^4 + t^3 - 16t^2 - 16t = 0$; $z^4 - 6z^3 + 13z^2 - 12z + 4 = 0$. $[0, -4, -1, 4; 1, 2]$
- 34.** $x^4 - 10x^2 + 9 = 0$; $y^4 - 4y^3 + y^2 + 8y - 6 = 0$. $[\pm 1, \pm 3; \pm\sqrt{2}, 1, 3]$
- 35.** $12t^4 - 8t^3 - 3t^2 + 2t = 0$; $x^4 - 4x^3 - x^2 + 16x - 12 = 0$. $\left[0, \pm\frac{1}{2}, \frac{2}{3}; 1, \pm 2, 3\right]$
- 36.** $x^4 - 4x^3 + 4x^2 = 1$; $x^5 - 5x^3 - 8x^2 + 40 = 0$. $[1, 1 - \sqrt{2}, 1 + \sqrt{2}; 2, \pm\sqrt{5}]$

Risolvere in $\mathbb{R}$ le seguenti equazioni biquadratiche a coefficienti numerici.

- 64.** $x^4 - 4x^2 - 5 = 0$; $x^4 + 13x^2 + 36 = 0$; $x^4 - 29x^2 + 100 = 0$. $[\pm\sqrt{5}; \text{imp.}; \pm 2, \pm 5]$
- 65.** $x^4 - 10x^2 - 96 = 0$; $x^4 + 28x^2 - 288 = 0$; $x^4 - 13x^2 - 48 = 0$. $[\pm 4; \pm 2\sqrt{2}; \pm 4]$
- 66.** $x^4 - 72x^2 - 5929 = 0$; $x^4 + 6x^2 - 27 = 0$; $y^4 - 324y^2 + 1280 = 0$. $[\pm 11; \pm\sqrt{3}; \pm 2, \pm 8\sqrt{5}]$
- 67.** $3x^4 - 22x^2 = 45$; $8x^4 = 3 - 2x^2$; $4x^4 - 37x^2 + 9 = 0$. $\left[\pm 3; \pm\sqrt{\frac{1}{2}}; \pm 3, \pm\frac{1}{2}\right]$
- 68.** $(x^2 - 12)(x^2 - 15) = 130$; $(x - 2)(x^2 - 1)(x + 3) = x(x^2 - 1) - 6$. $[\pm\sqrt{2}, \pm 5; \pm\sqrt{3}, \pm 2]$

Risolvere le seguenti equazioni trinomie a coefficienti numerici.

- 143.** $y^6 - 7y^3 + 10 = 0$; $x^6 - 26x^3 - 27 = 0$; $x^6 - 28x^3 + 27 = 0$. $[\sqrt[3]{2}, \sqrt[3]{5}; -1, 3; 1, 3]$
- 144.** $x^6 - 35x^3 + 216 = 0$; $x^6 - 9x^3 + 8 = 0$; $x^6 + 28x^3 + 27 = 0$. $[2, 3; 1, 2; -1, -3]$
- 145.** $x^2(x^2 + 1) + \frac{x}{x-1} = \frac{x(3x^2 + 1) - 2}{x^2 - 1}$; $\frac{x^6}{16} - 8x^3 = -2\left(72 + \frac{7}{8}x^3\right)$. $[\sqrt[3]{2}; \sqrt[3]{36}, 4]$
- 146.** $8x^6 - 35x^3 + 27 = 0$; $x^6 + 26x^3 - 27 = 0$; $512x^6 + 152x^3 - 27 = 0$. $\left[1, \frac{3}{2}; 1, -3; -\frac{3}{4}, \frac{1}{2}\right]$