

# ESERCIZI IN PIÙ

## LE EQUAZIONI DI GRADO SUPERIORE AL SECONDO

Risolvi le seguenti equazioni nell'incognita  $x$ .

- 1**  $32x^5 + 243 = 0$   $\left[-\frac{3}{2}\right]$
- 2**  $194481x^4 = 2401$   $\left[\pm\frac{1}{3}\right]$
- 3**  $12x^4 + 28x^2 + 15 = 0$  [impossibile]
- 4**  $2x^3 + x^2 - 13x + 6 = 0$   $\left[-3; \frac{1}{2}; 2\right]$
- 5**  $4x^4 - 17x^2 + 4 = 0$   $\left[-\frac{1}{2}; \frac{1}{2}; -2; 2\right]$
- 6**  $(2x^2 - 4)^3 = 216$   $[\pm\sqrt{5}]$
- 7**  $27x^3 - 54x^2 + 36x - 8 = 0$   $\left[\frac{2}{3}\right]$
- 8**  $4x^4 - 17a^2x^2 + 4a^4 = 0$   $\left[\pm 2a; \pm\frac{1}{2}a\right]$
- 9**  $(3x - 1)^6 = 64$   $\left[1; -\frac{1}{3}\right]$
- 10**  $\frac{9x^2 - 2a^2}{3x - a} + \frac{2a^2 - x}{3x} = \frac{a^3 + 3x^2 - ax}{3ax - 9x^2}$   
[impossibile]
- 11**  $\frac{6x^2 + 1}{x - 2} + \frac{x - 2}{x + 2} = \frac{20x^2 + 4x}{x^2 - 4}$   $\left[-1; \frac{2}{3}; \frac{3}{2}\right]$
- 12**  $8x^4 - 5\sqrt{3}x^2 + \frac{3}{2} = 0$   $\left[\pm\frac{\sqrt[4]{12}}{2}; \pm\frac{\sqrt[4]{12}}{4}\right]$
- 13**  $2x^3 - 3x^2 - 23x + 12 = 0$   $\left[\frac{1}{2}; -3; 4\right]$
- 14**  $\frac{x^2 + 9}{2x - 5} - \frac{3 - 4x}{2x} = \frac{13x^2 - 5}{4x^2 - 10x}$   $[\pm 2]$
- 15**  $x^4 - a^2(4a^2 + 1)x^2 + 4a^6 = 0$   $[\pm a; \pm 2a^2]$
- 16**  $x^4 - \sqrt{2}x^2 - \sqrt{3}x^2 + \sqrt{6} = 0$   $[\pm\sqrt[4]{3}; \pm\sqrt[4]{2}]$
- 17**  $(8x^6 - 7a^3x^3 - 3a^6)^7 = -128a^{42}$   $\left[a; -\frac{1}{2}a\right]$
- 18**  $25x^4b^2 - 625x^2b^4 - x^2 + 25b^2 = 0$   
 $\left[\pm 5b; \pm\frac{1}{5b}\right]$
- 19**  $12x^4 + 25x^3 - 25x - 12 = 0$   $\left[-\frac{3}{4}; -\frac{4}{3}; \pm 1\right]$
- 20**  $6x^4 - 49x^3 + 86x^2 - 49x + 6 = 0$   $\left[1; 6; \frac{1}{6}\right]$
- 21**  $\sqrt{6}x^4 - 2\sqrt{3}x^2 - 3\sqrt{2}x^2 + 6 = 0$   
 $[\pm\sqrt[4]{3}; \pm\sqrt[4]{2}]$
- 22**  $3x^2 - x = \frac{26x^3 + 1 - 3x^4}{9x^4 + 3x^3}$  [1]
- 23**  $\sqrt{6}x^4 - \sqrt{2}x^2 + 2\sqrt{6}x^2 - 2\sqrt{2} = 0$   
 $\left[\pm\frac{1}{3}\sqrt[4]{27}\right]$
- 24**  $4x^4 - 9x^3 - 26x^2 - 9x + 4 = 0$   $\left[-1; 4; \frac{1}{4}\right]$
- 25**  $\frac{4x^2 - 3}{2x - 1} = \frac{x - 3}{2x} - \frac{14x^2 - 3x}{4x^2 - 2x}$   $\left[-\frac{3}{2}; -\frac{1}{2}\right]$
- 26**  $2x^4 - \frac{2}{3}\sqrt{3}x^2 + x^2 - \frac{\sqrt{3}}{3} = 0$   $\left[\pm\frac{1}{3}\sqrt[4]{27}\right]$
- 27**  $\frac{32x^{11} + 2}{x + 1} = \frac{65x^5 - 3}{2x - 1} - \frac{32x^{11} - 7x + 65x^5}{2x^2 + x - 1}$   
 $\left[-\frac{1}{2}; 1\right]$
- 28**  $12x^4 + 56x^3 + 89x^2 + 56x + 12 = 0$   $\left[-\frac{2}{3}; -\frac{3}{2}; -2; -\frac{1}{2}\right]$

$$29 \quad \frac{x^2 + 3x}{2x^2 - 3x - 2} - \frac{3x - 4}{x - 2} = \frac{1 - 2x^2}{2x + 1} \quad [3]$$

$$30 \quad 2\sqrt{3}x^3 + 7x(x - 1) = 2\sqrt{3}x(x - 1) + 2\sqrt{3} \quad \left[ 1; -\frac{\sqrt{3}}{2}; -\frac{2}{3}\sqrt{3} \right]$$

$$31 \quad \frac{3x^3 - 1}{x - 2} - \frac{7x^2 + 2}{2x} = \frac{7x - 26x^2 - 2}{4x - 2x^2} \quad \left[ -1; \frac{1}{2}; -\frac{1}{3} \right]$$