

## Esercitazione sulle equazioni binomie, trinomie e reciproche in R

### 1. Risolvere le equazioni binomie

a.  $2x^3 - 16 = 0$

$$S = \{2\}$$

b.  $125x^3 + 9 = 0$

$$S = \left\{ -\frac{\sqrt[3]{9}}{5} \right\}$$

c.  $x^4 - 64 = 0$

$$S = \{\pm 2\sqrt{2}\}$$

d.  $x^3 + 125 = 0$

$$S = \{-5\}$$

e.  $8x^3 - 27 = 0$

$$S = \left\{ \frac{3}{2} \right\}$$

f.  $4x^4 - \frac{1}{81} = 0$

$$S = \left\{ \pm \frac{\sqrt{2}}{6} \right\}$$

g.  $x^6 - 8 = 0$

$$S = \{\pm \sqrt{2}\}$$

h.  $4x^6 - 0,25 = 0$

$$S = \left\{ \pm \frac{\sqrt[3]{2}}{2} \right\}$$

i.  $x^5 + 10^{-5} = 0$

$$S = \{-0,1\}$$

j.  $27x^5 - 0,1 = 0$

$$S = \left\{ \frac{1}{3} \right\}$$

k.  $2x^7 + 2^{-6} = 0$

$$S = \left\{ -\frac{1}{2} \right\}$$

### 2. Risolvere le equazioni trinomie

a.  $x^4 - 2x^2 - 3 = 0$

$$S = \{\pm \sqrt{3}\}$$

b.  $2x^4 + 5x^2 - 7 = 0$

$$S = \{\pm 1\}$$

c.  $x^6 - 5x^3 - 6 = 0$

$$S = \{-1; \sqrt[3]{6}\}$$

d.  $(x^4 - 2)^2 = 6$

$$S = \{\pm \sqrt[4]{2 + \sqrt{6}}\}$$

e.  $\left(x + \frac{2}{x}\right)^2 - \left(x + \frac{2}{x}\right) - 6 = 0$

$$S = \{1; 2\}$$

f.  $x^4 - 3x^2 - m^2 - 3m = 0$

### 3. Risolvere le equazioni reciproche

a.  $2x^3 - x^2 + x - 2 = 0$

$$S = \{1\}$$

b.  $5x^3 - 7x^2 + 7x - 5 = 0$

$$S = \{1\}$$

c.  $5x^3 + 7x^2 + 7x + 5 = 0 \rightarrow (x+1)(5x^2 + 2x + 5) = 0$

$$S = \{-1\}$$

d.  $10x^3 + 39x^2 + 39x + 10 = 0$

$$S = \left\{ -\frac{5}{2}; \dots; \dots \right\}$$

e.  $3x^3 - 13x^2 + 13x - 3 = 0$

$$S = \{\dots; \dots; 3\}$$

f.  $4x^4 + 17x^3 - 17x - 4 = 0$

$$S = \left\{ \pm 1; -4; -\frac{1}{4} \right\}$$

g.  $3x^4 - 10x^3 + 10x - 3 = 0$

$$S = \left\{ \pm 1; \frac{1}{3}; 3 \right\}$$

h.	$10x^4 + 29x^3 - 29x - 10 = 0$	$S = \left\{ \pm 1; -\frac{5}{2}; -\frac{2}{5} \right\}$
i.	$6x^4 + 5x^3 - 38x^2 + 5x + 6 = 0$	$S = \left\{ -3; -\frac{1}{3}; \frac{1}{2}; 2 \right\}$
j.	$10x^5 + 19x^4 - 29x^3 - 29x^2 + 19x + 10 = 0$	$S = \left\{ -\frac{5}{2}; \dots; \dots; 1; \dots \right\}$
k.	$3x^5 - 7x^4 - 10x^3 + 10x^2 + 7x - 3 = 0$	$S = \left\{ -1; \dots; \frac{1}{3}; \dots; \dots \right\}$
l.	$\sqrt{2}x^3 - (3 + \sqrt{2})x^2 + (3 + \sqrt{2})x - \sqrt{2} = 0$	$S = \left\{ \dots; \dots; \sqrt{2} \right\}$
m.	$\sqrt{3}x^4 + 4x^3 - 4x - \sqrt{3} = 0$	$S = \left\{ -\sqrt{3}; \dots; \dots; \dots \right\}$