

Esercitazione sulle equazioni di secondo grado (in R)

Equazioni intere

1) $x^2 - 4x + 3 = 0$,

$$S = \{1; 3\}$$

2) $2x^2 + 7x - 9 = 0$

$$S = \left\{-\frac{9}{2}; 1\right\}$$

3) $x^2 - \frac{1}{6}\left(x - \frac{1}{6}\right) = \frac{1}{36}$

$$S = \left\{0; \frac{1}{6}\right\}$$

4) $x^2 + (x-1)^2 = 3x^2$

$$S = \{-1 - \sqrt{2}; -1 + \sqrt{2}\}$$

5) $15x^2 - 20x - 35 = 0 \rightarrow 3x^2 - 4x - 7 = 0$

$$S = \left\{-1; \frac{7}{3}\right\}$$

6) $x^2 - 20x + 75 = 0$

$$S = \{5; 15\}$$

7) $x^2 - 4x - 32 = 0$

$$S = \{-4; 8\}$$

8) $5x^2 + 18x - 23 = 0$

$$S = \left\{-\frac{23}{5}; 1\right\}$$

9) $7x^2 - 24x + 2 = 0$

$$S = \left\{\frac{10}{7}; 2\right\}$$

10) $3x^2 + 10x + 3 = 0$

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

11) $15x^2 - 2x - 17 = 0$

$$S = \left\{-1; \frac{17}{15}\right\}$$

12) $13x^2 + 20x - 12 = 0$

$$S = \left\{-2; \frac{6}{13}\right\}$$

13) $0,1x^2 - 0,01x - 9,9 = 0$

$$S = \left\{-\frac{99}{10}; 10\right\}$$

Equazioni razionali fratte

$$1) \frac{x}{x-1} - \frac{x-2}{2x+1} - 2 = 0$$

$$S = \{0; 2\}$$

$$2) \frac{x+1}{3x-1} - \frac{1}{4x} = \frac{1}{4}$$

$$S = \{-1\}, \text{ la soluzione è doppia}$$

$$3) \frac{x-7}{x^2-x} - 5 = 0$$

$$S = \emptyset$$

$$4) \frac{1}{x+3} - \frac{2x}{x-1} = 0$$

$$S = \left\{ -\frac{5+\sqrt{17}}{4}; \frac{\sqrt{17}-5}{4} \right\}$$

$$5) \frac{1}{(x+1)(x-2)} + \frac{3}{x(x-2)} = 0$$

$$S = \emptyset$$

$$6) \frac{3-x}{x+6} - \frac{1}{x(x+6)} = -\frac{1}{27} \rightarrow 26x^2 - 87x + 27 = 0$$

$$S = \left\{ \frac{9}{26}; 3 \right\}$$

$$7) \frac{2x+1}{x-4} - \frac{x}{x+5} = 0$$

$$S = \left\{ \frac{5-3\sqrt{5}}{2}; \frac{5+3\sqrt{5}}{2} \right\}$$

$$8) \frac{1}{x} - \frac{2x}{(x+2)(x-3)} = 0$$

$$S = \emptyset$$

$$9) \frac{x}{x-4} + \frac{2}{3} = \frac{2}{x+3}$$

$$S = \left\{ -\frac{1}{5}; 0 \right\}$$

$$10) \frac{1-2x}{x+1} - \frac{1}{2} = \frac{x+1}{2}$$

$$S = \{-7; 0\}$$

$$11) 4x - \frac{1}{2} = \frac{x-3}{x+6}$$

$$S = \left\{ -\frac{45}{8}; 0 \right\}$$

$$12) x - \frac{1}{x} = 0$$

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

$$13) 2x - 3 = \frac{4}{2x-3}$$

$$S = \left\{ \frac{1}{2}; \frac{5}{2} \right\}$$

$$14) 4x - \frac{1}{2} = \frac{8}{1-8x}$$

$$S = \emptyset$$

$$15) 4x + \frac{8}{1-8x} = \frac{1}{2}$$

$$S = \left\{ -\frac{3}{8}; \frac{5}{8} \right\}$$

$$16) \frac{x(x-1)}{3(x+1)} - x + 1 = 0$$

$$S = \left\{ -\frac{3}{4}; 1 \right\}$$

$$17) \frac{x}{x-2} - \frac{8(x-2)}{x} = -2$$

$$S = \left\{ \frac{8}{5}; 4 \right\}$$