14/9/2020 PAG. 595 EQUAZIONI LETTERALI

107 $(b-1)x = b$

$5x = 3$

$\downarrow$

$\frac{5x}{5} = \frac{3}{5} \rightarrow x = \frac{3}{5}$

$b - 1 \neq 0 \Rightarrow b \neq 1$

$\frac{(b-1)}{b-1}x = \frac{b}{b-1} \Rightarrow x = \frac{b}{b-1}$

$b - 1 = 0 \Rightarrow b = 1$

$0 \cdot x = 1$

$0 = 1$ EQ. IMPOSSIBILE

$b \neq 1 \Rightarrow x = \frac{b}{b-1}$

$b = 1 \Rightarrow$ EQ. IMPOSSIBILE

110 $(2k+3)x = 4k^2 - 9$

$2k+3 \neq 0 \qquad 2k \neq -3$

$\boxed{k \neq -\frac{3}{2}} \Rightarrow \qquad \frac{(2k+3)x}{2k+3} = \frac{4k^2-9}{2k+3}$

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

$\boxed{k = -\frac{3}{2}} \Rightarrow \qquad \left(2\left(-\frac{3}{2}\right)+3\right)\cdot x = 4\left(-\frac{3}{2}\right)^2 - 9$

$0 = 0$ EQ. INDETERMINATA

119 $(x-a)^2-(x-2a)^2=(1+2a)^2-3a^2-4a-1$

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

$$x^2+a^2-2ax-x^2-4a^2+4ax=a^2$$

$$2ax=4a^2$$

$2a\neq 0 \Rightarrow a\neq 0$ $\qquad \frac{2ax}{2a}=\frac{4a^2}{2a}$ $\qquad x=2a$

$a=0$ $\qquad 0=0$ $\qquad$ EQ. INDET.

$a\neq 0 \Rightarrow \quad x=2a$

$a=0 \Rightarrow$ EQ. INDETERMINATA

139 $\dfrac{ax-1}{3}-\dfrac{x}{12}=\dfrac{(a-1)x}{4}-\dfrac{a}{2}$

$$\frac{4(ax-1)-x}{12}=\frac{3(a-1)x-6a}{12}$$

$$4ax-4-x=3ax-3x-6a$$

$$4ax-x-3ax+3x=-6a+4$$

$$ax+2x=4-6a$$

$$(a+2)x=4-6a$$

$a+2\neq 0 \Rightarrow a\neq -2$ $\qquad x=\dfrac{4-6a}{a+2}$

$a=-2$ $\qquad 0=16$ EQ. IMPOSSIBILE

146 $(x-2a)^3 - x^3 = (x-a)(x+a) - 6a(x-2a)^2 - x^2$

$x^3 - 6ax^2 + 12a^2x - 8a^3 - x^3 = x^2 - a^2 - 6a(x^2 - 4ax + 4a^2) - x^2$

$-6ax^2 + 12a^2x - 8a^3 = -a^2 - 6ax^2 + 24a^2x - 24a^3$

$12a^2x - 24a^2x = -a^2 - 24a^3 + 8a^3$

$-12a^2x = -a^2 - 16a^3$

$12a^2x = a^2 + 16a^3$

$12a^2 \neq 0 \Rightarrow a \neq 0 \qquad x = \dfrac{a^2 + 16a^3}{12a^2} = \dfrac{a^2(1+16a)}{12a^2}$

$a = 0 \qquad 0 = 0 \qquad$ EQ. INDET.

$a \neq 0 \Rightarrow \qquad x = \dfrac{16a + 1}{12}$

$a = 0 \Rightarrow$ EQ. INDETERMINATA

145 $\dfrac{(2x-k)^2+(2x+k)^2}{10}-\dfrac{x-1}{2}=-\dfrac{(k-2x)(2k+2x)}{5}$

$$\frac{4x^2+k^2-4kx+4x^2+k^2+4kx-5(x-1)}{10}=\frac{-2(2k^2+2kx-4kx-4x^2)}{10}$$

$$8x^2+2k^2-5x+5=-4k^2-4kx+8kx+8x^2$$

$$-5x+4kx-8kx=-4k^2-2k^2-5$$

$$-5x-4kx=-6k^2-5$$

$$5x+4kx=6k^2+5$$

$$x(5+4k)=6k^2+5$$

$5+4k\neq 0 \Rightarrow 4k\neq -5 \Rightarrow k\neq -\frac{5}{4}$ $\qquad x=\dfrac{6k^2+5}{4k+5}$

$k=-\frac{5}{4}$ $\qquad 0=6\cdot\frac{25}{16}+5$

EQ. IMPOSSIBILE