Lezione 50

Equazioni frazionarie (riepilogo)

$$\frac{1}{x} + \frac{1}{2} = \frac{4}{1}$$

$$\frac{2+x}{2x} = \frac{8x}{2x} \quad \cdot 2x$$

$$2 + x = 8x$$

$$x - 8x = -2$$

$$-7x = -2$$

$$7x = 2 \Rightarrow \boxed{x = \frac{2}{7}} \quad \checkmark$$

val. accettabile

$$\boxed{m.c.m(x, 2) = 2 \cdot x = 2x}$$

Prodotto fattori comunie non comuni a esponente maggiore.

C. E.

Condizioni di esistenza

$$2 \cdot x \neq 0$$

$$\boxed{x \neq 0}$$

$$\frac{4}{x-1}+\frac{6}{x-5}=\frac{1}{x-7}+\frac{9}{x-3}$$

$$m.c.m\left((x-1),(x-5),(x-7),(x-3)\right)=(x-1)(x-5)(x-7)(x-3)$$

$$\frac{4(x-5)(x-7)(x-3)+6(x-1)(x-7)(x-3)}{(x-1)(x-5)(x-7)(x-3)}=\frac{(x-1)(x-5)(x-3)+9(x-1)(x-5)(x-7)}{(x-1)(x-5)(x-7)(x-3)}$$

C.E.

$x-1\neq 0\Rightarrow x\neq 1$

$x-5\neq 0\Rightarrow x\neq 5$

$x-7\neq 0\Rightarrow x\neq 7$

$x-3\neq 0\Rightarrow x\neq 3$

$$4(x-5)(x-7)(x-3)+6(x-1)(x-7)(x-3)=(x-1)(x-5)(x-3)+9(x-1)(x-5)(x-7)$$

$$4(x^2-7x-5x+35)(x-3)+6(x^2-7x-x+7)(x-3)=(x^2-5x-x+5)(x-3)+9(x^2-5x-x+5)(x-7)$$

$$4(x^2-12x+35)(x-3)+6(x^2-8x+7)(x-3)=(x^2-6x+5)(x-3)+9(x^2-6x+5)(x-7)$$

$$4(x^3-3x^2-12x^2+36x+35x-105)+6(x^3-3x^2-8x^2+24x+7x-21)=$$

$$=x^3-3x^2-6x^2+18x+5x-15+9(x^3-7x^2-6x^2+42x+5x-35)$$

$$4(x^3-15x^2+71x-105)+6(x^3-11x^2+31x-21)=x^3-9x^2+23x-15+9(x^3-13x^2+47x-35)$$

$$4x^3-60x^2+284x-420+6x^3-66x^2+186x-126=x^3-9x^2+23x-15+9x^3-117x^2+423x-315$$

$$470x-546=446x-330$$

$$470x-446x=-330+546$$

$$24x=216$$

$$\frac{24x}{24}=\frac{216}{24}$$

$$x=\frac{216}{24}=9\Rightarrow \boxed{x=9}$$

sol. acettabile