

MASSIMO GOBBINO → PRECORSO

Titolo nota

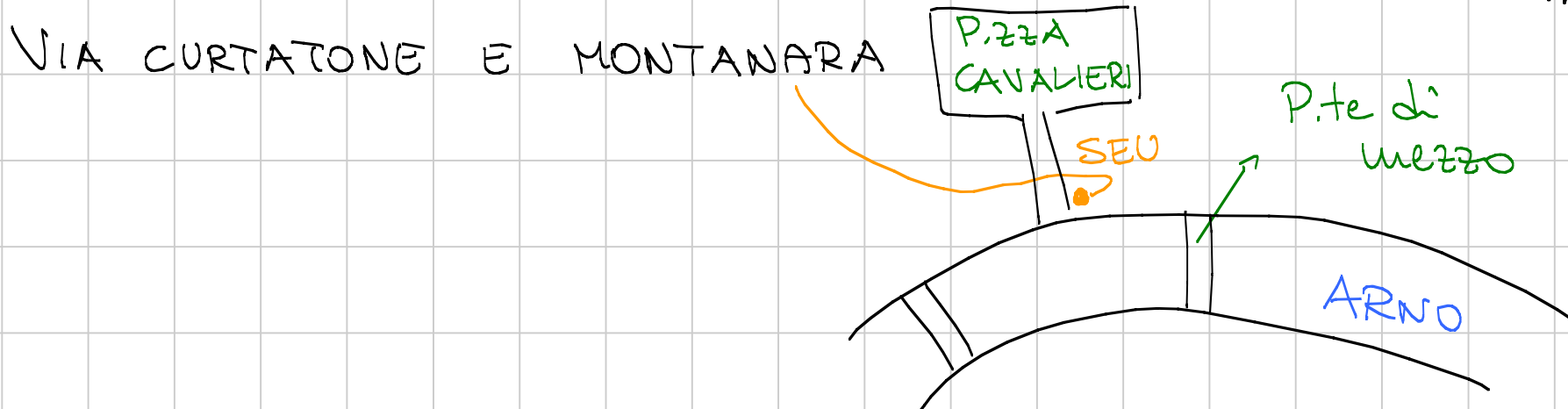
15/09/2008

$$\frac{1}{a+b} = \frac{1}{a} + \frac{1}{b} \quad 2^7 + 2^8 = 2^{15}$$

— o — o —

Esercizi: Versione "VECCHIA": HOME - PAGE

Versione "UFFICIALE": SERVIZIO EDITORIALE UNIVERSITARIO
LU-VE MATTINO ≤ 13:00
MAE GI anche 15:00-17:00



FRAZIONI E SEMPLICI EQUAZIONI

a

$$\frac{1}{3}$$

b

$$\frac{1}{2}$$

a+b

$$\frac{1}{3} + \frac{1}{2} = \frac{5}{6}$$

a.b

$$\frac{1}{6}$$

$\frac{a}{b}$

$$\frac{3}{2}$$

$\frac{a}{a+b}$

$$\frac{1}{3} : \frac{1}{2} = \frac{1}{3} \cdot 2 = \frac{2}{3}$$

$$\frac{a}{a+b} = \frac{\frac{1}{3}}{\frac{5}{6}} = \frac{1}{3} \cdot \frac{6}{5} = \frac{2}{5}$$

$$a = \frac{1}{3} \quad a+b = \frac{1}{2} \quad b = (a+b) - a = \frac{1}{2} - \frac{1}{3} = \frac{3-2}{6}$$

$$a \cdot b = \frac{1}{3} \cdot \frac{1}{6} = \frac{1}{18}; \quad \frac{a}{b} = \frac{1}{3} : \frac{1}{6} = 2$$

$$\frac{a}{a+b} = \frac{1}{3} : \frac{1}{2} = \frac{2}{3}$$

$$a = \frac{1}{3} \quad a \cdot b = \frac{1}{2} \quad b = \frac{a \cdot b}{a} = \frac{\frac{1}{2}}{\frac{1}{3}} = \frac{1}{2} \cdot 3 = \frac{3}{2}$$

$$a+b = \frac{1}{3} + \frac{3}{2} = \frac{2+9}{6} = \frac{11}{6} \quad ; \quad \frac{6}{6} = \frac{2}{3} \cdot \frac{2}{3} = \frac{4}{9}$$

$$\frac{a}{a+b} = \frac{\frac{1}{3}}{\frac{11}{6}} = \frac{1}{3} \cdot \frac{6}{11} = \frac{2}{11}$$

$$a = \frac{1}{3} \quad \frac{6}{6} \quad \frac{1}{2} \quad a = \frac{1}{2/b} \quad 2a = b \quad b = 2a = \frac{2}{3}$$

$$\frac{a}{b} = \frac{1}{2} \quad \text{Moltiplico a dx e sx per 2}$$

$$\frac{a}{b} \cdot 2 = \frac{1}{2} \cdot 2$$

$$\frac{2a}{b} = 1$$

Moltiplicando per b
"sposto il b a dx"

$$a = \frac{1}{3} \quad \frac{a}{a+b} = \frac{1}{2}$$

$$\frac{a}{a+b} = \frac{1}{2}$$

$$\cancel{2}a = \cancel{a} + b \quad a = b \Rightarrow b = \frac{1}{3}$$

— 0 — 0 —

$$a = 2 \quad b = \frac{1}{3} \quad a+b = 2 + \frac{1}{3} = \frac{6+1}{3} = \frac{7}{3}; \quad a \cdot b = \frac{2}{3}$$

$$\frac{a}{b} = \frac{2}{\frac{1}{3}} = 2 \cdot 3 = 6; \quad \frac{a}{a+b} = 2 : \frac{7}{3} = 2 \cdot \frac{3}{7} = \frac{6}{7}$$

— 0 —

$$b = 2 \quad a \cdot b = 3 \quad a = \frac{3}{b} = \frac{3}{2}; \quad a+b = 2 + \frac{3}{2} = \frac{7}{2}$$

$$\frac{a}{b} = \frac{\frac{3}{2}}{2} = \frac{3}{2} \cdot \frac{1}{2} = \frac{3}{4}; \quad \frac{a}{a+b} = \frac{\frac{3}{2}}{\frac{7}{2}} = \frac{3}{\cancel{2}} \cdot \frac{\cancel{2}}{7} = \frac{3}{7}$$

$$b = 2 \quad \frac{a}{b} = 3$$

$$a = 3b = 6 \quad \text{resto } \dots$$

— o — o —

$$b = 2, \quad \frac{a}{a+b} = \frac{1}{3}$$

$$3a = a + b \Rightarrow 2a = b, \quad 2a = 2, \quad a = 1$$

$$3a = a + b$$

Aggiungo $-a$ a dx e sx

$$\underline{3a - a} = \cancel{a + b} - \cancel{a}$$

$2a$

$$2a = b$$

— o — o —

$$b = \frac{2}{5} \quad \frac{a}{a+b} = \frac{7}{4}$$

$$4a = 7a + 7b$$

$$-3a = 7b \quad ; \quad -3a = 7 \cdot \frac{2}{5} \quad ; \quad -3a = \frac{14}{5} \quad ; \quad a = -\frac{14}{15}$$

$$a = \frac{2}{5} \quad \frac{a}{a+b} = \frac{3}{5} \quad ; \quad 5a = 3a + 3b \quad ; \quad 2a = 3b$$

$$b = \frac{2}{3} a = \frac{2}{3} \cdot \frac{2}{5} = \frac{4}{15}$$

$$a+b = \frac{1}{2} \quad \frac{a}{a+b} = \frac{1}{3} \quad ; \quad 3a = a+b = \frac{1}{2}$$

$$3a = \frac{1}{2} \Rightarrow a = \frac{1}{6} \quad ; \quad b = (a+b) - a = \frac{1}{2} - \frac{1}{6} = \frac{1}{3}$$

$$a+b = \frac{1}{3} \quad \frac{a}{a+b} = \frac{1}{2} \quad ; \quad a = \frac{1}{2}(a+b) = \frac{1}{2} \cdot \frac{1}{3} = \frac{1}{6}$$

$$b = (a+b) - a = \frac{1}{3} - \frac{1}{6} = \frac{1}{6}$$

$$a = \frac{3}{2} \quad \frac{a}{a+b} = \frac{2}{3} \quad ; \quad 3a = 2a + 2b \quad ; \quad a = 2b$$

$$b = \frac{1}{2}a = \frac{1}{2} \cdot \frac{3}{2} = \frac{3}{4}$$

$$a+b = \frac{1}{3} \quad ; \quad \frac{a}{b} = \frac{1}{2} \quad ; \quad \text{sostituisco nella 1ª eq}$$

$$2a = b \quad ; \quad a+2a = \frac{1}{3} \quad ; \quad 3a = \frac{1}{3} \quad ; \quad a = \frac{1}{9}$$
$$b = 2a = \frac{2}{9}$$

$$a+b = \frac{2}{3}, \quad a \cdot b = \frac{1}{9}$$

Ricavo b dalla 1ª equazione

$$b = \frac{2}{3} - a \quad \text{sostituisco nella 2ª;}$$

$$a\left(\frac{2}{3} - a\right) = \frac{1}{9}; \quad \frac{2}{3}a - a^2 = \frac{1}{9} \quad \text{Moltiplico per 9}$$

$$6a - 9a^2 = 1 \quad \text{Porto tutto a dx} \quad 9a^2 - 6a + 1 = 0$$

$$a = \frac{6 \pm \sqrt{36 - 36}}{18} = \frac{6}{18} = \frac{1}{3}$$

Quindi $a = \frac{1}{3}$ e poiché $a+b = \frac{2}{3}$, anche $b = \frac{1}{3}$

$$a-b = \frac{3}{4} \quad \frac{a}{a+b} = \frac{2}{7} \rightarrow 7a = 2a + 2b, \quad 5a = 2b$$
$$b = \frac{5}{2}a \rightarrow \text{sostituisco nella 1ª}$$

$$a - \frac{5}{2}a = \frac{3}{4}, \quad a\left(1 - \frac{5}{2}\right) = \frac{3}{4}; \quad -\frac{3}{2}a = \frac{3}{4}; \quad a = -\frac{2}{3} \cdot \frac{3}{4} = -\frac{1}{2}$$
$$b = a - \frac{3}{4} = -\frac{1}{2} - \frac{3}{4} = -\frac{5}{4}$$

Verifica

$$a-b = -\frac{1}{2} - \left(-\frac{5}{4}\right) = -\frac{1}{2} + \frac{5}{4} = \frac{-2+5}{4} = \frac{3}{4}$$

$$\frac{a}{a+b} = \frac{-\frac{1}{2}}{-\frac{1}{2} + \left(-\frac{5}{4}\right)} = \frac{-\frac{1}{2}}{-\frac{1}{2} - \frac{5}{4}} = \frac{+\frac{1}{2}}{+\frac{2+5}{4}} = \frac{1}{2} \cdot \frac{4}{7} = \frac{2}{7}$$

$$\frac{a+b}{a-b} = \frac{2}{7}$$

1^a EQ.

$$\frac{b}{a+b} = \frac{7}{2}$$

2^a EQ

1^a EQ: $7a+7b = 2a-2b$
 $5a = -9b$

2^a EQ: $2b = 7a+7b$
 $7a = -5b$

Mettendo insieme ottengo

$$a = -\frac{9}{5}b$$

$$+\frac{9}{5}b = +\frac{5}{7}b$$

$$63b = 25b$$

$$a = -\frac{5}{7}b$$

$$38b = 0$$

$$b = 0$$

$$a = -\frac{9}{5}b = 0$$

Ma le frazioni non avrebbero senso \Rightarrow IMPOSSIBILE

$7 \geq 5$ VERA! $7 > 5$ VERA! $7 = 5$ FALSA!

$1999 \geq 1999$ VERA!

$-1999 < -2000$ FALSA!

$-2000 < -1999$



Se $x^2 > 0$, allora $x > 0$ FALSA! Per esempio $x = -2$

Se $x \geq 3$, allora $x^2 \geq 9$ VERA

Se $x \geq 3$, allora $x^2 > 0$ VERA (a maggior ragione!)

Se $x \geq 3$, allora $x^2 \geq -7$ VERA

Se $x > 3$, allora $x^2 \geq 9$ VERA

Se $x > 3$, allora $x^2 > 9$ VERA

Se $x < 3$, allora $x^2 < 9$ FALSA: per esempio

$x = -327$ (< 3 , ma il suo \square
è ≥ 9)

Esiste $x \in \mathbb{R}$ tale che $x^2 \leq 0$

VERA: Esiste ed è $x = 0$