Calcolo del termine incognito di una proporzione continua. Soluzioni guidate.

Arithmetic - Ratio & Proportion Solved Exercises

1. $6 : x = x : 24$ soluzione
2. $x : 54 = 6 : x$ soluzione
3. $18 : x = x : 2$ soluzione
4. $28 : x = x : 7$ soluzione
5. $3 : x = x : 27$ soluzione
6. $4 : x = x : 81$ soluzione
7. $2 : x = x : 50$ soluzione
8. $x : 3 = 12 : x$ soluzione
9. $24 : x = x : 54$ soluzione
10. $32 : x = x : 98$ soluzione
11. $36 : x = x : 9$ soluzione
12. $0{,}6 : x = x : 2{,}4$ soluzione
13. $150 : x = x : 6$ soluzione
14. $4{,}41 : x = x : 4$ soluzione
15. $\frac{1}{4} : x = x : \frac{1}{25}$ soluzione
16. $\frac{5}{16} : x = x : \frac{10}{2}$ soluzione
17. $x : \frac{1}{27} = \frac{49}{3} : x$ soluzione
18. $x : \frac{8}{3} = \frac{2}{3} : x$ soluzione
19. $\frac{75}{49} : x = x : \frac{3}{16}$ soluzione
20. $\frac{5}{7} : x = x : \frac{28}{45}$ soluzione
21. $x : \frac{16}{45} = \frac{4}{5} : x$ soluzione

22. $0,0\overline{4} : x = x : 1,6$

$x = \frac{85}{8}$

soluzione

23. $x : 0,\overline{1} = 5,\overline{4} : x$

$x : 0,(1) = 5,(4) : x$

$x = \frac{7}{9}$

soluzione

24. $x : 2,\overline{6} = 0,\overline{6} : x$

$x : 2,(6) = 0,(6) : x$

$x = \frac{4}{3}$

soluzione

25. $0,\overline{3} : x = x : 0,\overline{1}$

$0,(3) : x = x : 0,(1)$

$x = \frac{1}{3\sqrt{3}}$

soluzione

26. $\left[\frac{1}{4} - \left(\frac{2}{5}\right)^2\right] : x = x : \left(2 + \frac{1}{4}\right)$

$x = \frac{9}{20}$

soluzione

27. $\left(3 - \frac{2}{3}\right) : x = x : \left[\frac{1}{4} \cdot \left(2 + \frac{1}{3}\right)\right]$

$x = \frac{7}{6}$

soluzione

28. $\left(1,\overline{1} - 0,\overline{3}\right) : x = x : \left(2 + \frac{2}{7}\right)$

$x = \frac{21}{10}$

soluzione

29. $\left(\frac{1-0,75}{0,\overline{6} - \frac{1}{2}} - \frac{0,25 + \frac{1}{3}}{1 + 0,\overline{3}}\right) : x = x : \frac{2,91\overline{6} : 11,9}{\left(\frac{3}{8} + 0,5\right) : \left(\frac{1}{4} + 0,\overline{3}\right)}$

$x = \frac{5}{12}$

soluzione

30. $x : \frac{\left(\frac{2}{3} - \frac{1}{2}\right) : \frac{7}{3}}{\frac{5}{9} \cdot \left(1 - \frac{7}{10}\right)} = \frac{\frac{7}{6} + \frac{5}{3} - \frac{1}{2}}{\left(\frac{11}{12} + \frac{1}{3}\right) - \frac{1}{4}} : x$

$x = 1$

soluzione

31. $\left(1,\overline{1} - 0,\overline{3}\right) : x = x : \left(2 + \frac{2}{7}\right)$

$x = \frac{4}{3}$

soluzione

32. $\left(\frac{1}{2} + 1\right) : x = x : \left[1 + \left(\frac{1}{2}\right)^3 : \left(\frac{1}{2}\right)^2\right]$

$x = \frac{3}{2}$

soluzione

33. $\left(2-\frac{1}{5}\right):x=x:\left(3-\frac{11}{20}\right)$ $x=\frac{21}{10}$

soluzione

34. $\frac{\frac{52}{45}}{\frac{1}{2}:\left(1-\frac{7}{8}\right)}:x=x:\frac{\frac{1}{3}:\frac{1}{27}}{\frac{3}{5}+\frac{2}{3}-\frac{1}{9}}$ $x=\frac{3}{2}$

soluzione

35. $\left[\left(1+\frac{1}{2}\right)+\left(\frac{1}{2}\right)^4:\left(\frac{1}{2}\right)^2\right]^2:x=x:\left[1-\left(\frac{3}{16}:\frac{1}{4}\right)+\frac{5}{16}\right]$ $x=\frac{21}{16}$

soluzione

36. $\left[1,\overline{3}:\left(0,\overline{5}:0,\overline{3}-\frac{1}{2}\right)\right]:x=x:\left(1-\frac{15}{14}:1{,}5\right)$ $x=\frac{4}{7}$

soluzione

Esercizi e soluzioni

$6 : x = x : 24$

Proporzione continua

Per la proprietà fondamentale delle proporzioni si ha $x = \sqrt{prodotto\ dei\ termini\ noti}$

$x = \sqrt{6 \cdot 24} = \sqrt{144} = 12$

oppure

$x = \sqrt{6 \cdot 24} = \sqrt{6 \cdot 6 \cdot 4} = 6 \cdot 2 = 12$

Oppure

$6 : x = x : 24$

Per la proprità fondamentale

$x \cdot x = 6 \cdot 24$

$x^2 = 6 \cdot 24$

Tralasciando, per ora, che se $x^2 = a$ abbiamo che x non corrisponde alla $\sqrt{a}$ abbiamo che

$x = \sqrt{6 \cdot 24} = \sqrt{144} = 12$

$x : 54 = 6 : x$

Proporzione continua

Per la proprietà fondamentale delle proporzioni si ha $x = \sqrt{prodotto\ dei\ termini\ noti}$

$x = \sqrt{54 \cdot 6} = \sqrt{324} = 18$

oppure

$x = \sqrt{54 \cdot 6} = \sqrt{9 \cdot 6 \cdot 6} = 3 \cdot 6 = 18$

Oppure

$x : 54 = 6 : x$

Per la proprità fondamentale

$x \cdot x = 6 \cdot 54$

$x^2 = 6 \cdot 54$

Tralasciando, per ora, che se $x^2 = a$ abbiamo che x non corrisponde alla $\sqrt{a}$ abbiamo che

$x = \sqrt{6 \cdot 54} = \sqrt{324} = 18$

$18 : x = x : 2$

Proporzione continua

Per la proprietà fondamentale delle proporzioni si ha $x = \sqrt{prodotto\ dei\ termini\ noti}$

$x = \sqrt{18 \cdot 2} = \sqrt{36} = 6$

oppure

$x = \sqrt{18 \cdot 2} = \sqrt{9 \cdot 2 \cdot 2} = 3 \cdot 2 = 6$

Oppure

$18 : x = x : 2$

Per la proprità fondamentale

$x \cdot x = 18 \cdot 2$

$x^2 = 18 \cdot 2$

Tralasciando, per ora, che se $x^2 = a$ abbiamo che x non corrisponde alla $\sqrt{a}$ abbiamo che

$x = \sqrt{18 \cdot 2} = \sqrt{36} = 6$

28 : x= x : 7

$x = \sqrt{28 \cdot 7} = \sqrt{196} = 14$

$3 \div x = x \div 27$

$x = \sqrt{3 \cdot 27} = \sqrt{81} = 9$

$4 \div x = x \div 81$

$x = \sqrt{4 \cdot 81} = \sqrt{4} \cdot \sqrt{81} = 2 \cdot 9 = 18$

$2 \div x = x \div 50$

$x = \sqrt{2 \cdot 50} = \sqrt{100} = 10$

$x \div 3 = 12 \div x$

$x = \sqrt{3 \cdot 12} = \sqrt{36} = 6$

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24 : x = x : 54

$$x = \sqrt{24 \cdot 54} = \sqrt{2 \cdot 3 \cdot 2^2 \cdot 2 \cdot 3 \cdot 3^2} =$$
$$= \sqrt{2^2 \cdot 2^2 \cdot 3^2 \cdot 3^2} = 2 \cdot 2 \cdot 3 \cdot 3 = 36$$

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32 : x= x : 98

$$x = \sqrt{32 \cdot 98} = \sqrt{16 \cdot 2 \cdot 2 \cdot 49} = \sqrt{16 \cdot 2^2 \cdot 7^2} = 4 \cdot 2 \cdot 7 = 56$$

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36 : x= x : 9

$$x = \sqrt{36 \cdot 9} = \sqrt{6^2 \cdot 3^2} = 6 \cdot 3 = 18$$

$$0{,}6 : x = x : 2{,}4$$
$$\frac{6}{10} : x = x : \frac{24}{10}$$
$$x = \sqrt{\frac{6}{10} \cdot \frac{24}{10}} = \sqrt{\frac{2 \cdot 3 \cdot 2 \cdot 3 \cdot 2^2}{10^2}} = \frac{12}{10} = \frac{6}{5}$$

150 : x= x : 6

$x = \sqrt{150 \cdot 6} = \sqrt{900} = 30$

$4{,}41 : x = x : 4$

$\frac{441}{100} : x = x : 4$

$x = \sqrt{\frac{441}{100} \cdot 4}$

$x = \frac{\sqrt{441}}{\sqrt{100}} \cdot \sqrt{4} = \frac{21}{\cancel{10}_{5}} \cdot \cancel{2} = \frac{21}{5}$

$\frac{1}{4} : x = x : \frac{1}{25}$

$x = \sqrt{\frac{1}{4} \cdot \frac{1}{25}} = \sqrt{\frac{1}{100}} = \frac{\sqrt{1}}{\sqrt{100}} = \frac{1}{10}$

$$\frac{5}{16}:x=x:\frac{10}{2}$$
$$\frac{5}{16}:x=x:\frac{5}{1}$$
$$x=\sqrt{\frac{5}{16}\cdot\frac{5}{1}}=\sqrt{\frac{25}{16}}=\frac{5}{4}$$

$$x:\frac{1}{27}=\frac{49}{3}:x$$
$$x=\sqrt{\frac{1}{27}\cdot\frac{49}{3}}=\sqrt{\frac{49}{81}}=\frac{7}{9}$$

$$x:\frac{8}{3}=\frac{2}{3}:x$$
$$x=\sqrt{\frac{8}{3}\cdot\frac{2}{3}}=\sqrt{\frac{16}{9}}=\frac{4}{3}$$

$$\frac{75}{49} : x = x : \frac{3}{16}$$

$$x = \sqrt{\frac{75}{49} \cdot \frac{3}{16}}$$

$$x = \sqrt{\frac{225}{49 \cdot 16}} = \frac{\sqrt{225}}{\sqrt{49} \cdot \sqrt{16}} = \frac{15}{7 \cdot 4} = \frac{15}{28}$$

$$\frac{5}{7} : x = x : \frac{28}{45}$$

$$x = \sqrt{\frac{5}{7} \cdot \frac{28}{45}} = \sqrt{\frac{4}{9}} = \frac{2}{3}$$

$$x : \frac{16}{45} = \frac{4}{5} : x$$

$$x = \sqrt{\frac{16}{45} \cdot \frac{4}{5}} = \sqrt{\frac{4^2 \cdot 2^2}{3^2 \cdot 5^2}} = \frac{8}{15}$$

$0{,}0\overline{4} : x = x : 1{,}6$

$0{,}0(4) : x = x : 1{,}6$

$\frac{4}{90} : x = x : \frac{16}{10}$

$x = \sqrt{\frac{4}{90} \cdot \frac{16}{10}} = \sqrt{\frac{64}{900}} = \frac{\sqrt{64}}{\sqrt{900}} = \frac{8}{30} = \frac{4}{15}$

$x : 0,(1) = 5,(4) : x$

$x : \frac{1}{9} = \frac{54-4}{9} : x$

$x : \frac{1}{9} = \frac{49}{9} : x$

$x = \sqrt{\frac{1}{9} \cdot \frac{49}{9}} = \sqrt{\frac{49}{81}} = \frac{7}{9}$

$x : 2,(6) = 0,(6) : x$

$x : \frac{26-2}{9} = \frac{6}{9} : x$

$x : \frac{24}{9} = \frac{2}{3} : x$

$x : \frac{8}{3} = \frac{2}{3} : x$

$x = \sqrt{\frac{8}{3} \cdot \frac{2}{3}} = \sqrt{\frac{16}{9}} = \frac{4}{3}$

$0,(3) : x = x : 0,(1)$

$0,\overline{(3)} : x = x : 0,(1)$

$\frac{3}{9} : x = x : \frac{1}{9}$

$x = \sqrt{\frac{3}{9} \cdot \frac{1}{9}} = \sqrt{\frac{1}{27}} = \frac{\sqrt{1}}{\sqrt{9 \cdot 3}} = \frac{1}{3\sqrt{3}}$

$\left[\frac{1}{4} - \left(\frac{2}{5}\right)^2\right] : x = x : \left(2 + \frac{1}{4}\right)$

$\left[\frac{1}{4} - \frac{4}{25}\right] : x = x : \frac{9}{4}$

$\left(\frac{25-16}{100}\right) : x = x : \frac{9}{4}$

$\frac{9}{100} : x = x : \frac{9}{4}$

$x = \sqrt{\frac{9}{100} \cdot \frac{9}{4}} = \sqrt{\frac{81}{400}} = \frac{\sqrt{81}}{\sqrt{400}} = \frac{9}{20}$

$\left(3 - \frac{2}{3}\right) : x = x : \left[\frac{1}{4} \cdot \left(2 + \frac{1}{3}\right)\right]$

$\left(\frac{9-2}{3}\right) : x = x : \left[\frac{1}{4} \cdot \frac{7}{3}\right]$

$\frac{7}{3} : x = x : \frac{7}{12}$

$x = \sqrt{\frac{7}{3} \cdot \frac{7}{12}} = \sqrt{\frac{49}{36}} = \frac{\sqrt{49}}{\sqrt{36}} = \frac{7}{6}$

$$\left(1,\overline{1}-0,\overline{3}\right):x=x:\left(2+\frac{2}{7}\right)$$

$$\left(\frac{10}{9}-\frac{3}{9}\right)\div x=x\div\left(2+\frac{2}{7}\right)$$

$$\frac{7}{9}\div x=x\div\frac{16}{7}$$

$$x=\sqrt{\frac{7}{9}\cdot\frac{16}{7}}=\sqrt{\frac{16}{9}}=\frac{4}{3}=1,\overline{3}$$

$$\left(\frac{1-0,75}{0,\overline{6}-\frac{1}{2}}-\frac{0,25+\frac{1}{3}}{1+0,\overline{3}}\right):x=x:\frac{2,91\overline{6}:11,9}{\left(\frac{3}{8}+0,5\right):\left(\frac{1}{4}+0,\overline{3}\right)}$$

$$\left(\frac{1}{4}\div\left(\frac{2}{3}-\frac{1}{2}\right)-\left(\frac{1}{4}+\frac{1}{3}\right)\div\left(1+\frac{1}{3}\right)\right)\div x=x\div\left(\left(\frac{2916-291}{900}\cdot\frac{10}{119}\right)\div\left(\frac{7}{8}\div\frac{7}{12}\right)\right)$$

$$\left(\frac{1}{4}\div\frac{1}{6}-\frac{7}{12}\div\frac{4}{3}\right)\div x=x\div\left(\left(\frac{2625}{90}\cdot\frac{1}{119}\right)\div\frac{3}{2}\right)$$

$$\left(\frac{3}{2}-\frac{7}{16}\right)\div x=x\div\left(\left(\frac{525}{18}\cdot\frac{1}{119}\right)\div\frac{3}{2}\right)$$

$$\frac{17}{16}\div x=x\div\left(\frac{175}{6}\cdot\frac{1}{119}\cdot\frac{2}{3}\right)$$

$$\frac{17}{16}\div x=x\div\left(\frac{25\cdot 7}{3}\cdot\frac{1}{17\cdot 7}\cdot\frac{1}{3}\right)$$

$$x=\sqrt{\frac{17}{16}\cdot\frac{25}{9\cdot 17}}=$$

$$x=\sqrt{\frac{17}{16}\cdot\frac{25}{153}}=\frac{5}{12}=0,41\overline{6}$$

$$x : \frac{\left(\frac{2}{3}-\frac{1}{2}\right):\frac{7}{3}}{\frac{5}{9}\cdot\left(1-\frac{7}{10}\right)} = \frac{\frac{7}{6}+\frac{5}{3}-\frac{1}{2}}{\left(\frac{11}{12}+\frac{1}{3}\right)-\frac{1}{4}} : x$$

$$x \div \frac{\left(\frac{4-3}{6}\right)\cdot\frac{3}{7}}{\frac{5}{9}\cdot\left(\frac{10-7}{10}\right)} = \frac{\frac{7+10-3}{6}}{\left(\frac{11+4}{12}\right)-\frac{1}{4}} \div x$$

$$x \div \frac{\left(\frac{1}{6}\right)\cdot\frac{3}{7}}{\frac{5}{9}\cdot\left(\frac{3}{10}\right)} = \frac{\frac{14}{6}}{\frac{15}{12}-\frac{1}{4}} \div x$$

$$x \div \frac{\frac{1}{14}}{\frac{1}{6}} = \frac{\frac{14}{6}}{\frac{15-3}{12}} \div x$$

$$x \div \left(\frac{1}{14}\cdot\frac{6}{1}\right) = \frac{14}{6} \div x$$

$$x \div \frac{3}{7} = \frac{7}{3} \div x$$

$$x = \sqrt{\frac{3}{7}\cdot\frac{7}{3}} = 1$$

$$\left(1,\overline{1}-0,\overline{3}\right):x=x:\left(2+\frac{2}{7}\right)$$

$$\left(\frac{10}{9}-\frac{3}{9}\right):x=x:\left(2+\frac{2}{7}\right)$$

$$\frac{7}{9}:x=x:\frac{16}{7}$$

$$x=\sqrt{\frac{7}{9}\cdot\frac{16}{7}}=\sqrt{\frac{16}{9}}=\frac{4}{3}=1,\overline{3}$$

$$\left(\frac{1}{2}+1\right):x=x:\left[1+\left(\frac{1}{2}\right)^3\div\left(\frac{1}{2}\right)^2\right]$$

$$\frac{3}{2}:x=x:\left[1+\left(\frac{1}{2}\right)^{3-2}\right]$$

$$\frac{3}{2}:x=x:\left[1+\frac{1}{2}\right]$$

$$\frac{3}{2}:x=x:\frac{3}{2}$$

$$x=\sqrt{\frac{3}{2}\cdot\frac{3}{2}}=\sqrt{\frac{9}{4}}=\frac{\sqrt{9}}{\sqrt{4}}=\frac{3}{2}$$

$$\left(2-\frac{1}{5}\right):x=x:\left(3-\frac{11}{20}\right)$$

$$x=\sqrt{\left(\frac{10-1}{5}\right)\cdot\left(\frac{60-11}{20}\right)}$$

$$=\sqrt{\frac{9}{5}\cdot\frac{49}{20}}=\frac{\sqrt{9}\cdot\sqrt{49}}{\sqrt{100}}=\frac{3\cdot 7}{10}=\frac{21}{10}$$

$$\frac{\frac{52}{45}}{\frac{1}{2}:\left(1-\frac{7}{8}\right)}:x=x:\frac{\frac{1}{3}:\frac{1}{27}}{\frac{3}{5}+\frac{2}{3}-\frac{1}{9}}$$

$$\frac{\frac{52}{45}}{\frac{1}{2}:\frac{1}{8}}:x=x:\frac{\frac{1}{3}\cdot\frac{27}{1}}{\frac{27+30-5}{45}}$$

$$\frac{\frac{52}{45}}{\frac{1}{2}\cdot\frac{8}{1}}:x=x:\frac{9}{\frac{52}{45}}$$

$$\frac{52}{45}\cdot\frac{1}{4}:x=x:9\cdot\frac{45}{52}$$

$$\frac{13}{45}:x=x:\frac{9\cdot 45}{52}$$

$$x=\sqrt{\frac{13}{45}\cdot\frac{9\cdot 45}{52}}=\sqrt{\frac{1}{1}\cdot\frac{9\cdot 1}{4}}=\sqrt{\frac{9}{4}}=\frac{3}{2}$$

$$\left[\left(1+\frac{1}{2}\right)+\left(\frac{1}{2}\right)^4:\left(\frac{1}{2}\right)^2\right]^2:x=x:\left[1-\left(\frac{3}{16}:\frac{1}{4}\right)+\frac{5}{16}\right]$$

$$\left[\left(\frac{2+1}{2}\right)+\left(\frac{1}{2}\right)^{4-2}\right]^2:x=x:\left[1-\left(\frac{3}{16}\cdot\frac{4}{1}\right)+\frac{5}{16}\right]$$

$$\left[\frac{3}{2}+\frac{1}{4}\right]^2:x=x:\left[1-\frac{3}{4}+\frac{5}{16}\right]$$

$$\left[\frac{6+1}{4}\right]^2:x=x:\left[\frac{16-12+5}{16}\right]$$

$$\frac{49}{16}:x=x:\frac{9}{16}$$

$$x=\sqrt{\frac{49}{16}\cdot\frac{9}{16}}$$

$$x=\sqrt{\frac{7^2}{4^2}\cdot\frac{3^2}{4^2}}=\frac{21}{16}$$

$$\left[1,\bar{3}:\left(0,\bar{5}:0,\bar{3}-\frac{1}{2}\right)\right]:x=x:\left(1-\frac{15}{14}:1{,}5\right)$$

$$\left[1,(3):\left(0,(5):0,(3)-\frac{1}{2}\right)\right]:x=x:\left(1-\frac{15}{14}:\frac{3}{2}\right)$$

$$\left[\frac{13-1}{9}:\left(\frac{5}{9}:\frac{3}{9}-\frac{1}{2}\right)\right]:x=x:\left(1-\frac{\cancel{15}^{5}}{\cancel{14}_{7}}\cdot\frac{\cancel{2}}{\cancel{3}}\right)$$

$$\left[\frac{12}{9}:\left(\frac{5}{3}-\frac{1}{2}\right)\right]:x=x:\left(1-\frac{5}{7}\right)$$

$$\left[\frac{4}{3}:\frac{10-3}{6}\right]:x=x:\frac{7-5}{7}$$

$$\left[\frac{4}{3}\cdot\frac{6}{7}\right]:x=x:\frac{2}{7}$$

$$\frac{8}{7}:x=x:\frac{2}{7}$$

$$x=\sqrt{\frac{8}{7}\cdot\frac{2}{7}}=\sqrt{\frac{16}{7^2}}=\frac{4}{7}$$

Keywords

Matematica, Aritmetica, Proporzionalità, Proporzioni, calcolo del termine incognito di una proporzione, estremi, medi, proporzioni, risolvere una proporzione, ricerca termine incognito, proporzioni continue, incognita, x, medio proporzionale, esercizi con soluzioni

Math, Arithmetic, Proportion, Proportionality, extremes, means, solving a proportion, proportionality problem, Math solved exercises

Matemática, Aritmética, Proporción

Mathématique, Arithmétique, Proportion

Mathematik, Arithmetik, das Verhältnis

Arabic: كَمِيَّه، حَجْم، عَدَد
Chinese 比例
Czech: poměr
Danish: forhold
Dutch: verhouding
Estonian: (õige) vahekord
Finnish: suhde
Greek: αναλογία
Hungarian: arány
Icelandic: hlutfall
Indonesian: perbandingan
Japanese: 割合
Korean: (양·크기·수 따위의) 비, 비율
Latvian: proporcija; attiecība; samērs
Lithuanian: proporcija, santykis
Norwegian: forhold
Polish: proporcja
Portuguese: proporção
Romanian: proporţie
Russian: пропорция
Slovak: pomer, podiel
Slovenian: razmerje
Swedish: proportion
Turkish: oran, nisbet