

Raccolta di equazioni di primo grado con frazioni. Completati di soluzione guidata.
First-Degree Equations. - Résolution des équations du premier degré.

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|-----|--|---|
| 1. | $2x + \frac{1}{2}x = 5$ | [2]
soluzione |
| 2. | $x - 3 = \frac{1}{2}x$ | [6]
soluzione |
| 3. | $\frac{2}{3} + \frac{1}{3}x = -3$ | [-11]
soluzione |
| 4. | $3 = 5 - \frac{1}{2}x$ | [4]
soluzione |
| 5. | $x + 3 = \frac{1}{2}x + 5$ | [4]
soluzione |
| 6. | $\frac{1}{2}x - 2 = 1 - \frac{1}{2}x$ | [3]
soluzione |
| 7. | $x = 5 - \frac{3}{2}x$ | [2]
soluzione |
| 8. | $6 + x = 7 + \frac{3}{2}x$ | [-2]
soluzione |
| 9. | $7x - 3 = \frac{1}{2}$ | $\left[\frac{1}{2}\right]$
soluzione |
| 10. | $5x - 7 = \frac{1}{2}x + 1$ | $\left[\frac{16}{9}\right]$
soluzione |
| 11. | $5x - \frac{1}{2}x = -7 + 2$ | $\left[-\frac{10}{9}\right]$
soluzione |
| 12. | $4x - \frac{1}{2}x = \frac{3}{4}x + 2$ | $\left[\frac{8}{11}\right]$
soluzione |
| 13. | $8x - x = \frac{3}{2}x + 4$ | $\left[\frac{8}{11}\right]$
soluzione |
| 14. | $8x - x - 4 = \frac{3}{4}x$ | $\left[\frac{16}{25}\right]$
soluzione |
| 15. | $\frac{1}{2}x + 4 = 3x - 5$ | $\left[\frac{18}{5}\right]$
soluzione |

16. $\frac{1}{2}x - 3x = 4 - 5$ [soluzione](#)

17. $6x - \frac{3}{4}x = \frac{1}{2}x + 5$ [soluzione](#)

18. $12x - \frac{3}{2}x = x + 10$ [soluzione](#)

19. $\frac{1}{6}x + \frac{1}{12}x + \frac{1}{7}x + 5 + \frac{1}{2}x + 4 = x$ [soluzione](#)

20. $\frac{1}{2}x + \frac{1}{3}x = 30$ [soluzione](#)

21. $\frac{1}{2}x + \frac{1}{2} = \frac{1}{3}$ [soluzione](#)

Soluzioni

Metodo 1	Metodo 2
$2x + \frac{1}{2}x = 5$ <p>Sommo i monomi simili</p> $\frac{4 + 1}{2}x = 5$ $\frac{5}{2}x = 5$ <p>Regola del trasporto (2^a principio)</p> $x = 5 \cdot \frac{2}{5} = 2$	$2x + \frac{1}{2}x = 5$ <p>Applico il 2^a principio in modo da ottenere una equazione priva di frazioni</p> $2 \cdot 2x + 2 \cdot \frac{1}{2}x = 2 \cdot 5$ $4x + x = 10$ <p>Sommo i monomi simili</p> $5x = 10$ <p>Regola del trasporto (2^a principio)</p> $x = \frac{10}{5} = 2$

Verifica

$$2x + \frac{1}{2}x = 5 \quad \text{per } x = 2$$

$$2 \cdot 2 + \frac{1}{2} \cdot 2 = 5$$

$$4 + 1 = 5$$

$$5 = 5$$

Verificata

Metodo 1	Metodo 2
$x - 3 = \frac{1}{2}x$ <p>Regola del trasporto (1^o principio)</p> $x - \frac{1}{2}x = 3$ <p>Sommo i monomi simili</p> $\frac{2-1}{2}x = 3$ $\frac{1}{2}x = 3$ <p>Regola del trasporto (2^o principio)</p> $x = 3 \cdot 2 = 6$	$x - 3 = \frac{1}{2}x$ <p>Applico il 2^o principio in modo da ottenere una equazione priva di frazioni</p> $2 \cdot x - 2 \cdot 3 = 2 \cdot \frac{1}{2}x$ $2x - 6 = x$ <p>Regola del trasporto (1^o principio)</p> $2x - x = 6$ $x = 6$

Verifica

$$x - 3 = \frac{1}{2}x \quad \text{per } x = 6$$

$$6 - 3 = \frac{1}{2} \cdot 6$$

$$3 = 3$$

Verificata

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

$$\frac{1}{3}x = -3 - \frac{2}{3}$$

Sommo i monomi simili

$$\frac{1}{3}x = \frac{-9 - 2}{3}$$

Regola del trasporto (2^o principio)

$$x = -\frac{11}{3} \cdot 3 = -11$$

Oppure

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

Applico il 2^o principio in modo da ottenere una equazione priva di frazioni

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

$$2 + x = -9$$

Regola del trasporto (1^o principio)

$$x = -9 - 2$$

$$x = -11$$

Verifica

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

$$\frac{2}{3} + \frac{1}{3} \cdot (-11) = -3$$

$$\frac{2}{3} - \frac{11}{3} = -3$$

$$\frac{2 - 11}{3} = -3$$

$$-\frac{9}{3} = -3$$

Verificata

$$3 = 5 - \frac{1}{2}x$$

Regola del trasporto (1[^] principio)

$$\frac{1}{2}x = 5 - 3$$

Sommo i monomi simili

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

Regola del trasporto (2[^] principio)

$$x = 2 \cdot 2 = 4$$

Oppure

$$3 = 5 - \frac{1}{2}x$$

Applico il 2[^] principio in modo da ottenere una equazione priva di frazioni

$$2 \cdot 3 = 2 \cdot 5 - 2 \cdot \frac{1}{2}x$$

$$6 = 10 - x$$

Regola del trasporto (1[^] principio)

$$x = 10 - 6$$

$$x = 4$$

Verifica

$$3 = 5 - \frac{1}{2}x$$

$$3 = 5 - \frac{1}{2} \cdot 4$$

$$3 = 5 - 2$$

$$3 = 3$$

Verificata

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

$$x - \frac{1}{2}x = 5 - 3$$

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

$$x = 2 \cdot 2 = 4$$

Oppure

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

Applico il 2^a principio in modo da ottenere una equazione priva di frazioni

$$2 \cdot x + 2 \cdot 3 = 2 \cdot \frac{1}{2}x + 2 \cdot 5$$

$$2x + 6 = x + 10$$

Regola del trasporto (2^a principio)

$$x = 10 - 6$$

$$x = 4$$

Verifica

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

$$4 + 3 = \frac{1}{2} \cdot 4 + 5$$

$$7 = 2 + 5$$

$$7 = 7$$

Verificata

$$\frac{1}{2}x - 2 = 1 - \frac{1}{2}x$$

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

$$x = 3$$

Oppure

$$\frac{1}{2}x - 2 = 1 - \frac{1}{2}x$$

Applico il 2° principio in modo da ottenere una equazione priva di frazioni

$$2 \cdot \frac{1}{2}x - 2 \cdot 2 = 2 \cdot 1 - 2 \cdot \frac{1}{2}x$$

$$x - 4 = 2 - x$$

Regola del trasporto (2° principio)

$$2x = 2 + 4$$

$$2x = 6$$

Regola del trasporto (2° principio)

$$x = \frac{6}{2}$$

$$x = 3$$

Verifica

$$\frac{1}{2}x - 2 = 1 - \frac{1}{2}x$$

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

$$\frac{3}{2} - 2 = 1 - \frac{3}{2}$$

$$\frac{3 - 4}{2} = \frac{2 - 3}{2}$$

$$-\frac{1}{2} = -\frac{1}{2}$$

Verificata

$$x = 5 - \frac{3}{2}x$$

$$x + \frac{3}{2}x = 5$$

$$\frac{2+3}{2}x = 5$$

$$\frac{5}{2}x = 5$$

$$x = 5 \cdot \frac{2}{5} = 2$$

Oppure

$$x = 5 - \frac{3}{2}x$$

$$2 \cdot x = 2 \cdot 5 - 2 \cdot \frac{3}{2}x$$

$$2x = 10 - 3x$$

$$5x = 10$$

$$x = \frac{10}{5} = 2$$

Verifica

$$x = 5 - \frac{3}{2}x$$

$$2 = 5 - \frac{3}{2} \cdot 2$$

$$2 = 2$$

Verificata

$$6 + x = 7 + \frac{3}{2}x$$

$$x - \frac{3}{2}x = 7 - 6$$

$$\frac{2-3}{2}x = 1$$

$$-\frac{1}{2}x = 1$$

$$x = 1 \cdot \left(-\frac{2}{1} \right) = -2$$

Oppure

$$6 + x = 7 + \frac{3}{2}x$$

$$12 + 2x = 14 + 3x$$

$$2x - 3x = 14 - 12$$

$$-x = 2$$

$$x = -2$$

Verifica

$$6 + x = 7 + \frac{3}{2}x$$

$$6 + (-2) = 7 + \frac{3}{2} \cdot (-2)$$

$$6 - 2 = 7 - 3$$

$$4 = 4$$

Verificata

$$7x - 3 = \frac{1}{2}$$

$$7x = \frac{1}{2} + 3$$

$$7x = \frac{1+6}{2}$$

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

$$x = \frac{7}{2} \cdot \frac{1}{7} = \frac{1}{2}$$

$$7 \cdot \left(\frac{1}{2}\right) - 3 = \frac{1}{2}$$

$$\frac{7}{2} - 3 = \frac{1}{2}$$

$$\frac{7-6}{2} = \frac{1}{2}$$

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

Verificata

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

$$10x - 14 = x + 2$$

$$10x - x = 14 + 2$$

$$9x = 16$$

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

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

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

$$\frac{10-1}{2}x = +8$$

$$\frac{9}{2}x = 8$$

$$x = 8 \div \frac{9}{2} = 8 \cdot \frac{2}{9} = \frac{16}{9}$$

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

$$5 \cdot \frac{16}{9} - 7 = \frac{1}{2} \cdot \frac{16}{9} + 1$$

$$\frac{80}{9} - 7 = \frac{8}{9} + 1$$

$$\frac{80-63}{9} = \frac{8+9}{9}$$

$$\frac{17}{9} = \frac{17}{9}$$

verificata

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

$$10x - x = -14 + 4$$

$$9x = -10$$

$$x = -\frac{10}{9}$$

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

$$\frac{10-1}{2}x = -5$$

$$\frac{9}{2}x = -5$$

$$x = -5 \div \frac{9}{2} = -5 \cdot \frac{2}{9} = -\frac{10}{9}$$

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

$$5 \cdot \left(-\frac{10}{9}\right) - \frac{1}{2} \cdot \left(-\frac{10}{9}\right) = -5$$

$$-\frac{50}{9} + \frac{5}{9} = -5$$

$$\frac{-50+5}{9} = -5$$

$$-\frac{45}{9} = -5$$

verificata

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

$$16x - 2x = 3x + 8$$

$$16x - 2x - 3x = 8$$

$$11x = 8$$

$$x = \frac{8}{11}$$

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

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

$$\frac{16-2-3}{4}x = +2$$

$$\frac{11}{4}x = +2$$

$$x = 2 \div \frac{11}{4} = 2 \cdot \frac{4}{11} = \frac{8}{11}$$

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

$$4 \cdot \frac{8}{11} - \frac{1}{2} \cdot \frac{8}{11} = \frac{3}{4} \cdot \frac{8}{11} + 2$$

$$\frac{32}{11} - \frac{4}{11} = \frac{6}{11} + 2$$

$$\frac{32-4}{11} = \frac{6+22}{11}$$

$$\frac{28}{11} = \frac{28}{11}$$

verificata

$$8x - x = \frac{3}{2}x + 4$$

$$16x - 2x = 3x + 8$$

$$16x - 2x - 3x = 8$$

$$11x = 8$$

$$x = \frac{11}{8}$$

$$8x - x = \frac{3}{2}x + 4$$

$$8x - x - \frac{3}{2}x = 4$$

$$\frac{16 - 2 - 3}{2}x = 4$$

$$\frac{11}{2}x = 4$$

$$x = 4 \cdot \frac{2}{11} = \frac{8}{11}$$

$$8 \cdot \frac{8}{11} - \frac{8}{11} = \frac{3}{2} \cdot \frac{8}{11} + 4$$

$$\frac{64}{11} - \frac{8}{11} = \frac{12}{11} + 4$$

$$\frac{64 - 8}{11} = \frac{12 + 44}{11}$$

$$\frac{56}{11} = \frac{56}{11}$$

verificata

$$8x - x - 4 = \frac{3}{4}x$$

$$32x - 4x - 16 = 3x$$

$$28x - 3x = 16$$

$$25x = 16$$

$$x = \frac{16}{25}$$

$$8x - x - 4 = \frac{3}{4}x$$

$$8x - x - \frac{3}{4}x = 4$$

$$\frac{32 - 4 - 3}{4}x = 4$$

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

$$x = 4 \cdot \frac{4}{25} = \frac{16}{25}$$

$$8 \cdot \frac{16}{25} - \frac{16}{25} - 4 = \frac{3}{4} \cdot \frac{16}{25}$$

$$\frac{128}{25} - \frac{16}{25} - 4 = \frac{12}{25}$$

$$\frac{128 - 16 - 100}{25} = \frac{12}{25}$$

$$\frac{12}{25} = \frac{12}{25}$$

verificata

$$\frac{1}{2}x + 4 = 3x - 5$$

$$x + 8 = 6x - 10$$

$$x - 6x = -10 - 8$$

$$-5x = -18$$

$$5x = 18$$

$$x = \frac{18}{5}$$

$$\frac{1}{2} \cdot \frac{18}{5} + 4 = 3 \cdot \frac{18}{5} - 5$$

$$\frac{9}{5} + 4 = \frac{54}{5} - 5$$

$$\frac{9 + 20}{5} = \frac{54 - 25}{5}$$

$$\frac{29}{5} = \frac{29}{5}$$

verificata

$$\frac{1}{2}x - 3x = 4 - 5$$

$$x - 6x = 8 - 10$$

$$-5x = -2$$

$$5x = 2$$

$$x = \frac{2}{5}$$

$$\frac{1}{2} \cdot \frac{2}{5} - 3 \cdot \frac{2}{5} = 4 - 5$$

$$\frac{1}{5} - \frac{6}{5} = -1$$

$$-\frac{5}{5} = -1$$

$$-1 = -1$$

verificata

$$6x - \frac{3}{4}x = \frac{1}{2}x + 5$$

$$24x - 3x = 2x + 20$$

$$21x - 2x = 20$$

$$19x = 20$$

$$x = \frac{20}{19}$$

$$6\left(\frac{20}{19}\right) - \frac{3}{4}\left(\frac{20}{19}\right) = \frac{1}{2}\left(\frac{20}{19}\right) + 5$$

$$\frac{120}{19} - \frac{15}{19} = \frac{10}{19} + 5$$

$$\frac{120 - 15}{19} = \frac{10 + 95}{19}$$

$$\frac{105}{19} = \frac{105}{19}$$

verificata

$$12x - \frac{3}{2}x = x + 10$$

$$24x - 3x = 2x + 20$$

$$21x - 2x = 20$$

$$19x = 20$$

$$x = \frac{20}{19}$$

Cerifica

$$12x - \frac{3}{2}x = x + 10$$

$$12\left(\frac{20}{19}\right) - \frac{3}{2}\left(\frac{20}{19}\right) = \frac{20}{19} + 10$$

$$\frac{240}{19} - \frac{30}{19} = \frac{20}{19} + 10$$

$$\frac{240 - 30}{19} = \frac{20 + 190}{19}$$

$$\frac{210}{19} = \frac{210}{19}$$

Verificata

$$\frac{1}{6}x + \frac{1}{12}x + \frac{1}{7}x + 5 + \frac{1}{2}x + 4 = x$$

$$\frac{1}{6}x \cdot 84 + \frac{1}{12}x \cdot 84 + \frac{1}{7}x \cdot 84 + 5 \cdot 84 + \frac{1}{2}x \cdot 84 + 4 \cdot 84 = x \cdot 84$$

$$14x + 7x + 12x + 420 + 42x + 336 = 84x$$

$$84x - 14x - 7x - 12x - 42x = 420 + 336$$

$$70x - 7x - 12x - 42x = 756$$

$$9x = 756$$

$$x = \frac{756}{9} = 84$$

$$\frac{1}{6}x + \frac{1}{12}x + \frac{1}{7}x + 5 + \frac{1}{2}x + 4 = x$$

$$\frac{1}{6} \cdot 84 + \frac{1}{12} \cdot 84 + \frac{1}{7} \cdot 84 + 5 + \frac{1}{2} \cdot 84 + 4 = 84$$

$$14 + 7 + 12 + 5 + 42 + 4 = 84$$

$$21 + 12 + 5 + 42 + 4 = 84$$

$$33 + 5 + 42 + 4 = 84$$

$$38 + 42 + 4 = 84$$

$$80 + 4 = 84$$

verificata

$$\frac{1}{2}x + \frac{1}{3}x = 30$$

$$3x + 2x = 180$$

$$5x = 180$$

$$x = \frac{180}{5} = 36$$

$$\frac{1}{2}x + \frac{1}{2} = \frac{1}{3}$$

$$3x + 3 = 2$$

$$3x = 2 - 3$$

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

Keywords



Algebra, equazioni, equazioni di primo grado, esercizi con soluzioni



Algebra, equation, linear equations, Algebraic Equations solved, exercises with solution



Algebra, ecuación, ecuaciones de primero grado



Algèbre, équations, système d'équations, équations en première



Algebra, reactievergelijking, Gleichung

Arabic: مُعادلة

Chinese (Simplified): 反应式

Chinese (Traditional): 反應式

Czech: rovnice

Danish: regnestykke; ligning

Estonian: võrrand

Finnish: kaava

German: die Gleichung

Greek: εξίσωση (χημική αντίδραση)

Hungarian: egyenlet

Icelandic: efnajafna

Indonesian: persamaan

Japanese: 方程式

Korean: 반응식

Latvian: vienādojums

Lithuanian: formulė

Norwegian: likning

Polish: równanie, wzór

Portuguese: equação

Romanian: ecuație

Russian: формула реакции

Slovak: rovnica

Slovenian: enačba

Swedish: kemisk formel

Turkish: denklem