Equazioni di primo grado. Livello intermedio. Complete di verifica e di soluzione guidata.
Solved Linear Equations

=-=

1. $x-(20-x)=4$ [12]
2. $x-(98-x)=22$ [60]
3. $3\cdot(5x+5)+3=x+4$ [-1]
4. $2x+12x+28=6x+40+5x$ [4]
5. $x+13-2x-12=-4x-11+4x+10$ [2]
6. $12x-5\cdot(x-3)-6x=1-4-4(3x-11)$ [2]
7. $3x+2\cdot(x-1)+4x=5(x+1)+1$ [2]
8. $6\cdot(3x-1)=7\cdot(4x+2)$ [-2]
9. $6\cdot(4x-1)=7\cdot(4x+2)$ [-5]
10. $6\cdot(x+1)-3\cdot(2x-1)=10+3x-2\cdot(3-x)$ [1]
11. $5x+2-4\cdot(3x-2)+2=3-12x+3\cdot(3x-1)$ [3]
12. $3\cdot(2x-1)-5\cdot(x+4)=-2\cdot(3x+1)$ [3]
13. $5(2x-3)-2(3x-1)=7x-(4x+5)$ [8]
14. $3x-\{2x-[6-2\cdot(1-x)-10]+2\cdot(x-1)\}=5x$ [-1]
15. $20x-10-(15x+20-18x)-3x=30x+5-3x$ [-5]
16. $4\cdot(3x-1)-6\cdot(2x+5)=4x+14$ [-12]
17. $2\cdot(x-3)+3\cdot(x-1)=5x+4\cdot(x-4)$ $\left[\frac{7}{4}\right]$ soluzione
18. $7\cdot(x-3)-1=2\cdot(x-3)-6$ [-2]
19. $-5\cdot(x-2)-(x+2)=3\cdot(1-x)-6x$ $\left[-\frac{5}{3}\right]$ soluzione
20. $1-5x=2(x-3)+3(x-1)$ [1]
21. $6(x+2)-3(x+4)+3=2x+4(x+1)$ $\left[-\frac{1}{3}\right]$ (*) soluzione

22. $3x-4(x+1)-5x+9=5(2x+7)-6$ — $\left[-\frac{3}{2}\right]$ soluzione

23. $2(x-4)=7x-3(x+1)+5(2x+5)$ — $\left[\frac{15}{6}\right]$ soluzione

24. $10(x+2)+20=6\,(x-2)+22-x$ — [-6] soluzione

25. $3(x-1)-2x=4(x-2)-1$ — [2] (*)

26. $2(x-3)-5(1+x)-1=x+2(1-2x)$ — [impossibile] (*)

27. $(x-3)(x+3)+1-3x=(x-2)\,(x+2)+4x-5$ — $\left[\frac{1}{7}\right]$ (*)

(*) gentile concessione della Commissione e-learning IPSSCART B. Stringher – Udine

Soluzioni delle equazioni

=-=

$x-(20-x)=4$

$x-20+x=4$

$2x=4+20$

$2x=24$

$x=\frac{24}{2}$

$x=12$

$12-(20-12)=4$

$12-8=4$

$4=4$

=-=

$x-(98-x)=22$

$x-98+x=22$

$2x=22+98$

$2x=120$

$x=\frac{120}{2}$

$x=60$

$60-(98-60)=22$

$60-38=22$

$22=22$

=-=

$3\cdot(5x+5)+3=x+4$

$3\cdot(5x+5)+3=x+4$

$15x+15+3=x+4$

$15x-x=+4-15-3$

$14x=-14$

$x=\frac{-14}{14}$

$x=-1$

$3\cdot(5x+5)+3=x+4 \quad per \quad x=-1$

$3\cdot(5\cdot(-1)+5)+3=(-1)+4$

$3\cdot(-5+5)+3=-1+4$

$3=3$

=-=

$2x + 12x + 18 = 6x + 40 + 5x$

$2x + 12x - 6x - 5x = 40 - 28$

$3x = 12$

$x = \frac{12}{3} = \mathbf{4}$

$2(4) + 12(4) + 28 = 6(4) + 40 + 5(4)$

$8 + 48 + 28 = 24 + 40 + 20$

$\mathbf{84 = 84}$

verificata

=-=

$x + 13 - 2x - 12 = -4x - 11 + 4x + 10$

$x - 2x + 4x - 4x = -11 + 10 - 13 + 12$

$-x = -24 + 22$

$-x = -2$

$x = 2$

$x + 13 - 2x - 12 = -4x - 11 + 4x + 10$

$2 + 13 - 4 - 12 = -8 - 11 + 8 + 10$

$15 - 4 - 12 = -19 + 8 + 10$

$15 - 16 = -19 + 18$

$-1 = -1$

verificata

=-=

$12x - 5 \cdot (x - 3) - 6x = 1 - 4 - 4(3x - 11)$

$12x - 5x + 15 - 6x = 1 - 4 - 12x + 44$

$12x - 5x - 6x + 12x = 1 - 4 + 44 - 15$

$13x = 26$

$x = \frac{26}{13} = 2$

$12 \cdot 2 - 5 \cdot (2 - 3) - 6 \cdot 2 = 1 - 4 - 4 \cdot (3 \cdot 2 - 11)$

$24 - 5 \cdot (-1) - 12 = 1 - 4 - 4 \cdot (6 - 11)$

$24 + 5 - 12 = 1 - 4 - 4 \cdot (-5)$

$17 = -3 + 20$

$17 = 17$

verificata

=-=

$3x + 2 \cdot (x - 1) + 4x = 5(x + 1) + 1$

$3x + 2x - 2 + 4x = 5x + 5 + 1$

$3x + 2x + 4x - 5x = 6 + 2$

$4x = 8$

$\boldsymbol{x} = \frac{8}{4} = \mathbf{2}$

$6 + 2 + 8 = 15 + 1$

$\mathbf{16 = 16}$

verificata

=-=

$6\cdot(3x-1)=7\cdot(4x+2)$

$18x - 6 = 28x + 14$

$18x - 28x = 6 + 14$

$-10x = 20$

$10x = -20$

$x = -\frac{20}{10}$

$\boldsymbol{x = -2}$

$6 \cdot (3 \cdot (-2) - 1) = 7 \cdot (4 \cdot (-2) + 2)$

$6 \cdot (-6 - 1) = 7 \cdot (-8 + 2)$

$6 \cdot (-7) = 7 \cdot (-6)$

$\boldsymbol{-42 = -42}$

verificata

=-=

$6\cdot(4x-1)=7\cdot(4x+2)$

$24x - 6 = 28x + 14$

$24x - 28x = 6 + 14$

$-4x = 20$

$x = -\frac{20}{4} = \boldsymbol{-5}$

$6 \cdot (4 \cdot (-5) - 1) = 7 \cdot (4 \cdot (-5) + 2)$

$6 \cdot (-20 - 1) = 7 \cdot (-20 + 2)$

$6 \cdot (-21) = 7 \cdot (-18)$

$\boldsymbol{-126 = -126}$

verificata

=-=

$6\cdot(x+1)-3\cdot(2x-1)=10+3x-2\cdot(3-x)$

$\cancel{6x} + 6 - \cancel{6x} + 3 = 10 + 3x - 6 + 2x$

$-3x - 2x = 10 - 6 - 6 - 3$

$-5x = -5$

$5x = 5$

$\boldsymbol{x = 1}$

$6 \cdot (1 + 1) - 3 \cdot (2 - 1) = 10 + 3 - 2 \cdot (3 - 1)$

$6 \cdot 2 - 3 = 10 + 3 - 2 \cdot 2$

$12 - 3 = 10 + 3 - 4$

$9 = 13 - 4$

$\boldsymbol{9 = 9}$

verificata

=-=

$5x+2-4\cdot(3x-2)+2=3-12x+3\cdot(3x-1)$

$5x + 2 - 12x + 8 + 2 = 3 - 12x + 9x - 3$

$5x - 9x = -2 - 2 - 8$

$-4x = -12$

$4x = 12$

$x = \frac{12}{4} = 3$

Verifica

$5(3) + 2 - 4(3(3) - 2) + 2 = 3 - 12(3) + 3\,(3(3) - 1)$

$15 + 2 - 4(9 - 2) + 2 = 3 - 36 + 3\,(9 - 1)$

$17 - 28 + 2 = 3 - 36 + 24$

$\boldsymbol{x} = (-12)(-4) = \mathbf{3}$

$\mathbf{-10 = -10}$

Verificata

=-=

$3\cdot(2x-1)-5\cdot(x+4)=-2\cdot(3x+1)$

$6x-3-5x-20=-6x-2$

$6x+6x-5x=-2+3+20$

$7x=21$

$x=\frac{21}{7}=3$

$3\cdot(2x-1)-5\cdot(x+4)=-2\cdot(3x+1)$

$3\cdot(2\cdot(3)-1)-5\cdot(3+4)=-2\cdot(3\cdot(3)+1)$

$3\cdot(6-1)-5\cdot(7)=-2\cdot(9+1)$

$3\cdot(5)-35\cdot=-2\cdot(10)$

$15-35=-20$

$-20=-20$

=-=

$5(2x - 3) - 2(3x - 1) = 7x - (4x + 5)$

$10x - 15 - 6x + 2 = 7x - 4x - 5$

$10x - 6x - 7x + 4x = -5 + 15 - 2$

$1x = 8$

$x = 8$

$5(2\cdot 8 - 3) - 2(3\cdot 8 - 1) = 7\cdot 8 - (4\cdot 8 + 5)$

$5(16 - 3) - 2(24 - 1) = 56 - (32 + 5)$

$5(13) - 2(23) = 56 - 37$

$65 - 46 = 19$

$19 = 19$

verificata

=-=

$3x-\{2x-[6-2\cdot(1-x)-10]+2\cdot(x-1)\}=5x$

$3x-\{2x-[6-2\cdot(1-x)-10]+2\cdot(x-1)\}=5x$

$3x-\{2x-[6-2+2x-10]+2x-2\}=5x$

$3x-\{2x-[-6+2x]+2x-2\}=5x$

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

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

$3x-2x-4=5x$

$-4x=+4$

$x=-1$

Verifica

$3\cdot(-1)-\{2\cdot(-1)-[6-2\cdot(1-(-1))-10]+2\cdot(-1-1)\}=5\cdot(-1)$

$-3-\{-2-[6-2\cdot(1+1)-10]-4\}=-5$

$-3-\{-2-[6-4-10]-4\}=-5$

$-3-\{-2-[-8]-4\}=-5$

$-3-\{-2+8-4\}=-5$

$-3-\{+6-4\}=-5$

$-3-\{+2\}=-5$

$-5=-5$

=-=

$$20x-10-(15x+20-18x)-3x=30x+5-3x$$
$$20x-10-15x-20+18x-3x=30x+5-3x$$
$$-7x=35$$
$$x=-5$$

$$20x-10-(15x+20-18x)-3x=30x+5-3x$$
$$-100-10-(-75+20+90)+15=-150+5+15$$
$$-130=-130$$

Per disegnare la retta corrispondente

$$20x-10-(15x+20-18x)-3x=30x+5-3x$$
$$0=-20x+10+15x+20-18x+30x+5$$
$$0=7x+35$$
$$y=7x+35$$

=-=

$$4\cdot(3x-1)-6\cdot(2x+5)=4x+14$$
$$12x-4-12x-30=4x+14$$
$$-4x=+4+30+14$$
$$-4x=48$$
$$x=-12$$

$$4\cdot(3x-1)-6\cdot(2x+5)=4x+14$$
$$4\cdot(-36-1)-6\cdot(-24+5)=-48+14$$
$$-148+114=-34$$
$$-34=-34$$

Per disegnare la retta corrispondente

$$4\cdot(3x-1)-6\cdot(2x+5)=4x+14$$
$$12x-4-12x-30=4x+14$$
$$0=-12x+4+12x+30+4x+14$$
$$0=4x+48$$
$$y=4x+48$$

=-=

$$2\cdot(x-3)+3\cdot(x-1)=5x+4\cdot(x-4)$$
$$2\cdot(x-3)+3\cdot(x-1)=5x+4\cdot(x-4)$$
$$2x-6+3x-3=5x+4x-16$$
$$2x+3x-5x-4x=-16+6+3$$
$$-4x=-7$$
$$x=\frac{7}{4}$$

$$2\cdot\left(\frac{7}{4}-3\right)+3\cdot\left(\frac{7}{4}-1\right)=5\frac{7}{4}+4\cdot\left(\frac{7}{4}-4\right)$$
$$2\cdot\left(-\frac{5}{4}\right)+3\cdot\left(\frac{3}{4}\right)=\frac{35}{4}+4\cdot\left(-\frac{9}{4}\right)$$
$$-\frac{5}{2}+\frac{9}{4}=\frac{35}{4}-\frac{36}{4}$$
$$\frac{-10+9}{4}=\frac{35-36}{4}$$
$$-\frac{1}{4}=-\frac{1}{4}$$

=-=

$$7\cdot(x-3)-1=2\cdot(x-3)-6$$
$$7x-21-1=2x-6-6$$
$$7x-2x=-6-6+21+1$$
$$5x=10$$
$$x=\frac{10}{5}=2$$

$$7\cdot(2-3)-1=2\cdot(2-3)-6$$
$$7\cdot(-1)-1=2\cdot(-1)-6$$
$$-7-1=-2-6$$
$$-8=-8$$

=-=

$$-5\cdot(x-2)-(x+2)=3\cdot(1-x)-6x$$
$$-5x+10-x-2=3-3x-6x$$
$$-5x-x+3x+6x=3-10+2$$
$$3x=-5$$
$$x=-\frac{5}{3}$$

$$-5\cdot\left(-\frac{5}{3}-2\right)-\left(-\frac{5}{3}+2\right)=3\cdot\left(1+\frac{5}{3}\right)-6\cdot\left(-\frac{5}{3}\right)$$
$$-5\cdot\left(-\frac{11}{3}\right)-\frac{1}{3}=3\cdot\left(\frac{8}{3}\right)+10$$
$$\frac{55}{3}-\frac{1}{3}=8+10$$
$$\frac{54}{3}=18$$
$$18=18$$

=-

$1-5x=2(x-3)+3(x-1)$

$1-5x=2x-6+3x-3$

$-5x-2x-3x=-6-3-1$

$-10x=-10$

$10x=10$

$x=1$

$1-5=2(1-3)+3(1-1)$

$-4=2(-2)+3(0)$

$-4=-4$

=-

$6(x+2)-3(x+4)+3=2x+4(x+1)$

$6x+12-3x-12+3=2x+4x+4$

$6x-3x+3=2x+4x+4$

$6x-3x-2x-4x=+4-3$

$-3x=1$

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

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

$6\left(\frac{5}{3}\right)-3\left(\frac{11}{3}\right)+3=-\frac{2}{3}+4\left(\frac{2}{3}\right)$

$10-11+3=-\frac{2}{3}+\frac{8}{3}$

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

$2=\frac{6}{3}$

Verificata

=-

$3x-4(x+1)-5x+9=5(2x+7)-6$

$3x-4x-4-5x+9=10x+35-6$

$3x-4x-5x-10x=+35-6+4-9$

$-16x=24$

$x=-\frac{24}{16}=-\frac{3}{2}$

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

$-\frac{9}{2}-4\left(\frac{-3+2}{2}\right)+\frac{15}{2}+9=5(-3+7)-6$

$-\frac{9}{2}-4\left(-\frac{1}{2}\right)+\frac{15}{2}+9=5(+4)-6$

$-\frac{9}{2}+2+\frac{15}{2}+9=20-6$

$\frac{-9+15}{2}+9+2=14$

$\frac{\cancel{6}^{3}}{\cancel{2}_{1}}+9+2=14$

$14=14$

Verificata

=-=

$$2(x-4)=7x-3(x+1)+5(2x+5)$$
$$2x-8=7x-3x-3+10x+25$$
$$2x-7x+3x-10x=-3+25+8$$
$$-12x=30$$
$$x=-\frac{30}{12}=-\frac{15}{6}=-\frac{5}{2}$$

Verifica

$$2(x-4)=7x-3(x+1)+5(2x+5)$$
$$2\left(-\frac{5}{2}-4\right)=7\left(-\frac{5}{2}\right)-3\left(-\frac{5}{2}+1\right)+5\left(2\left(-\frac{5}{2}\right)+5\right)$$
$$2\left(\frac{-5-8}{2}\right)=-\frac{35}{2}-3\left(\frac{-5+2}{2}\right)+5(-5+5)$$
$$2\left(-\frac{13}{2}\right)=-\frac{35}{2}-3\left(-\frac{3}{2}\right)$$
$$-13=-\frac{35}{2}+\frac{9}{2}$$
$$-13=\frac{-35+9}{2}$$
$$-13=-\frac{26}{2}$$

=-=

$$10(x+2)+20=6(x-2)+22-x$$
$$10x+20+20=6x-12+22-x$$
$$10x-6x+x=-12+22-40$$
$$5x=10-40$$
$$x=-\frac{30}{5}=-6$$

$$10[-6+2]+20=6[-6-2]+22-(-6)$$
$$10(-4)+20=6(-8)+22+6$$
$$-40+20=-48+22+6$$
$$-20=-26+6$$
$$-20=-20$$

=-=

$3(x-1)-2x=4(x-2)-1$

$3x-3-2x=4x-8-1$

$3x-2x-4x=-8-1+3$

$-3x=-6$

$3x=6$

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

$3(2-1)-2\cdot 2=4(2-2)-1$

$6-3-4=-1$

$-1=-1$

=-=

$2(x-3)-5(1+x)-1=x+2(1-2x)$

$2x-6-5-5x-1=x+2-4x$

$2x-5x-x+4x=2+6+5+1$

$0x=14$

[impossibile]

=-=

$(x-3)(x+3)+1-3x=(x-2)(x+2)+4x-5$

$x^2-9+1-3x=x^2-4+4x-5$

$-3x-4x=-4-5+9-1$

$-7x=-1$

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

=-=

Keywords

Algebra, equazioni, equazioni di primo grado, problemi traducibili in equazioni, esercizi con soluzioni
Algebra, equation, linear equations, Algebraic Equations solved, Problems and equations, Problem solving, exercises with solution
Algebra, ecuación, ecuaciones de primero grado
Algèbre, équations, système d'équations, équations en première
Algebra, Gleichung, die Gleichung

Arabic: مُعادلَه
Chinese (Simplified): 方程式
Chinese (Traditional): 等式
Czech: rovnice
Danish: ligning
Estonian: võrrand
Finnish: yhtälö
Greek: εξίσωση
Hungarian: kiegyenlítés; egyenlet
Icelandic: jafna
Indonesian: persamaan
Italian: equazione
Japanese: 方程式
Korean: 방정식
Latvian: vienādojums
Lithuanian: lygtis
Norwegian: likning, det å betrakte som lik
Polish: równanie
Portuguese: equação
Romanian: ecuaţie
Russian: уравнение
Slovak: rovnica
Slovenian: enačba
Swedish: ekvation
Turkish: eşitlik