

Algebra 1 1.5

Solve equations with one variable.

Solve equations with two variables.

open sentence

equation

solution what number makes it true?

"replacement set" what to try?

element

solution set

expression $\rightarrow$ $3x + 7$ $3x + 7 = 13$ $\leftarrow$ equation

$$3 \cdot ? + 7 = 13$$

~~$x = 1.2$~~ $3 + 7$

$x = 2$ $3 \cdot 2 + 7 = 13$

Find the solution set of each equation if the replacement set is $\{11, 12, 13, 14, 15\}$.

$$1. \textcircled{n} + 10 = 23$$

$$3. 29 = \textcircled{x} - 7$$

$$2. 7 = \frac{\textcircled{c}}{2}$$

$$4. (k - 8)12 = 84$$

$$\begin{aligned} (15 - 8) \cdot 12 &= 84 \\ 7 \cdot 12 &= 84 \end{aligned}$$

$$\begin{aligned} 1. \quad n + 10 &= 23 \\ 13 + 10 &= 23 \\ n &= 13 \end{aligned}$$

$$3n = 60$$

none

$$\begin{aligned} 3. \quad 29 &= 3 \cdot 12 - 7 \\ x &= 12 \quad 36 - 7 \end{aligned}$$

Solve each equation.

6. $x = 4(6) + 3$ 62MA

8. $5 + 22a = 2 + 10 \div 2$

$$x = 24 + 3$$

$$x = 27$$

$$5 + 22a = 2 + 5$$

$$\begin{array}{r} 5 + 22a = 7 \\ -5 \quad -5 \end{array}$$

$$\begin{array}{r} (22)a = 2 \\ (22) \quad 22 \end{array}$$

$$a = \frac{1}{11}$$

$$14 - 82 = 68$$

7. $14 - 82 = w$

9. $(2 \cdot 5) + \frac{c^3}{3} = c^3 \div (1^5 \div 2) + 10$

$$39 \cdot 10 + \frac{c^3}{3} = \frac{39c^3}{13}$$

$$\frac{390 + 39c^3}{3} = \frac{39c^3}{13}$$

$$\begin{array}{r} 390 + 13c^3 = 3c^3 \\ -13c^3 \quad -13c^3 \end{array}$$

$$\begin{array}{r} 390 = -10c^3 \\ -10 \quad -10 \end{array}$$

$$\begin{array}{r} -39 = c^3 \end{array}$$

$$c = -3.39$$

Find the solution set of each equation if the replacement sets are $y: \{1, 3, 5, 7, 9\}$ and $z: \{10, 12, 14, 16, 18\}$.

11. $z + 10 = 22$ $z = 12$

13. $\frac{15}{y} = 3$ $y = 5$

$$2 + 10 = 22$$

12. $52 = 4z$ none

14. $17 = 24 - y$

$$y = 7$$

| Solve each equation.

$$19. a = 32 - 9(2) = 14 = a$$

$$21. \frac{27 + 5}{16} = g$$

$$\frac{32}{16}$$

$$2 = g$$

$$w = \frac{56}{7}$$

$$w = 8$$

$$20. w = 56 \div (2^2 + 3)$$

$$22. \frac{12 \cdot 5}{15 - 3} = y$$

$$\frac{60}{12} = y$$

$$5 = y$$

$$23. r = \frac{(9(6))}{((8+1)3)} = \frac{54}{27} = 2$$

$$25. (4 - 2^2 + 5)w = 25$$

$$24. a = \frac{4(14 - 1)}{3(6) - 5} + 7$$

$$26. 7 + x - (3 + 32 \div 8) = 3$$

29. $6k + (3 \cdot 10 - 8) = (2 \cdot 3)k + 22$

30. $(3 \cdot 5)t + (21 - 12) = 15t + 3^2$

31 $(2^4 - 3 \cdot 5)q + 13 = (2 \cdot 9 - 4^2)q + \left(\frac{3 \cdot 4}{12} - 1\right)$

Make a table of values for each equation if the replacement set is $\{-2, -1, 0, 1, 2\}$.

37. $y = 3x - 2$

38. $3.25x + 0.75 = y$

Solve each equation using the given replacement set.

39. $t - 13 = 7$; $\{10, 13, 17, 20\}$

40. $14(x + 5) = 126$; $\{3, 4, 5, 6, 7\}$