

Solutions to Equations

Solutions to equations are values for the variables that make the two sides equal.

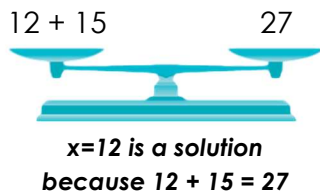
Think of a correct equation as a balanced scale.



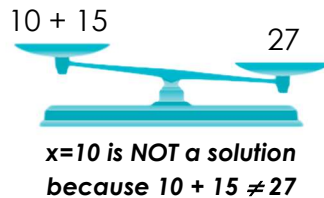
If an equation has a variable you can check to see if a number is a solution to an equation by substituting the number in for the variable. If you get the same number on both sides, you have found a solution to the equation.

Example: EQUATION: $x + 15 = 27$

Is $x=12$ a solution?



Is $x=10$ a solution?



You Try:

- 1) Is $x = 3$ a solution to the equation, $x + 5 = 10$?
- 2) Is $y = 5$ a solution to the equation, $\frac{30}{y} = 6$?
- 3) Is $z = 12$ a solution to the equation, $8z = 95$?

You Try:

Determine if the following value for the variable is a solution to the equation. Write yes or no.

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|-------------------------------------|-------------------------------------|
| 1) $9 + x = 21$, for $x = 11$ | 2) $n - 12 = 5$, for $n = 17$ |
| 3) $25r = 75$, for $r = 3$ | 4) $72 \div q = 8$, for $q = 9$ |
| 5) $28 + c = 43$, for $c = 15$ | 6) $u \div 11 = 10$, for $u = 111$ |
| 7) $\frac{k}{8} = 4$, for $k = 24$ | 8) $16x = 48$, for $x = 3$ |
| 9) $73 - f = 29$, for $f = 54$ | 10) $67 - j = 25$, for $j = 42$ |
| 11) $39 \div v = 13$, for $v = 3$ | 12) $88 + d = 100$, for $d = 2$ |
| 13) $14p = 20$, for $p = 5$ | 14) $6w = 30$, for $w = 5$ |
| 15) $7 + x = 70$, for $x = 10$ | 16) $6n = 174$, for $n = 29$ |

Replace each \diamond with a number that makes the equation correct.

- | | |
|------------------------------------|--------------------------------------|
| 17) $5 + 1 = 2 + \diamond$ | 18) $10 - \diamond = 12 - 7$ |
| 19) $\diamond \cdot 3 = 2 \cdot 9$ | 20) $28 \div 4 = 14 \div \diamond$ |
| 21) $\diamond + 8 = 6 + 3$ | 22) $12 \cdot 0 = \diamond \cdot 15$ |
- 23) Carla had \$15. After she bought lunch, she had \$8 left. Write an equation using the variable, x , to model this situation. What does your variable represent?
 - 24) Seventy-two people signed up for the soccer league. After the players were evenly divided into teams, there were 6 teams in the league. Write an equation to model this situation using the variable, x .