

Solving one-step equations

CURRICULUM ALIGNMENT

ALG.EXP.4 articulate, represent and solve mathematical situations through the use of expressions and equations that include letter-symbols.

INTERACTIVES Balance Scales · challenge, display

WHAT THIS LESSON TEACHES

A statement that two amounts are equal, shown with an equals sign - the two sides balance.
Solve by doing the same to both sides to isolate x .

→ $x + 4 = 9$ means an unknown number plus 4 is the same as 9.

→ Take 4 from both sides of $x + 4 = 9$ to leave $x = 5$.

MODEL THIS ON THE BOARD

SOLVE ON THE BALANCE SCALES

- 1 Start with $x + 5 = 12$.
- 2 Subtract 5 from both sides to get $x = 7$.
- 3 Check: $7 + 5 = 12$ - it balances.

ANSWER KEY

Scaffold: visual check on the page

Q1: $x = 5$

Q2: $x = 12$

Q3: $x = 4$

Q4: $x = 5$

a) Always : Subtracting the same number from both sides keeps the balance.

b) Sometimes : True for $x + 7 = 12$; false for $3x = 12$, which needs dividing.

c) Always : Substitution checks whether both sides match.

d) Never : Division works for multiplication equations, not addition.

EXTENSION SHEET · STRETCH ANSWERS

S1: $x = 26$

S2: $x = 22$

S3: $x = 19$

S4: $x = 10$

S5: $x = 9$