

Solving simple equations: find the missing value

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

Two amounts joined by an equals sign mean both sides have the same value. To find the mystery number, undo what was done to it by doing the opposite on both sides.

$$\rightarrow x + 5 = 12$$

$$\rightarrow 3x = 15$$

MODEL THIS ON THE BOARD

SOLVE $x + 5 = 12$ ON THE BALANCE

- 1 Write the equation $x + 5 = 12$.
- 2 Take 5 off both sides to keep the beam level.
- 3 This leaves $x = 7$.
- 4 Check: $7 + 5$ equals 12, so the beam stays level.

ANSWER KEY

a) 7

b) 5

c) 13

Q1: 4

Q2: 7

Q3: 5

a) **Always** : The balance stays level only when both sides change by the same amount.

b) **Always** : Subtracting 5 undoes the addition and leaves x alone.

c) **Never** : Both sides must receive the same change or the sides are no longer equal.

d) **Never** : x must be 4, which is less than 10.

EXTENSION SHEET · STRETCH ANSWERS

S1: $x = 168$

S2: $x = 26$

S3: $x = 9$

S4: $x = 15$

S5: $x = 10$