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Solving One-Step Inequalities by Adding or Subtracting

43 lbs already on scale

50 lbs weight limit

≤ less than/equal to

$x + 43 \leq 50$

- 1 Decide how much Carol's suitcase can weigh.
- 2 Determine the maximum weight of Carol's second suitcase.
- 3 Describe how to represent solutions of an inequality on a number line.
- 4 Find the correct inequalities for the number lines.
- 5 Figure out how much Sue can spend on ice cream.
- + with lots of tips, answer keys, and detailed answer explanations for all of the problems.



The complete package, including all problems, hints, answers, and detailed answer explanations is available for all [sofatutor.com](https://www.sofatutor.com) subscribers.



Decide how much Carol's suitcase can weigh.

Choose the correct answers.



There is already a suitcase with 43 lbs on the scale, and the maximum weight limit for Carol's luggage is 50 lbs.

We assign the variable x to the unknown weight of the second suitcase. This gives us the inequality:

$$x + 43 \leq 50.$$

A

8

B

2

C

10

D

7

E

12

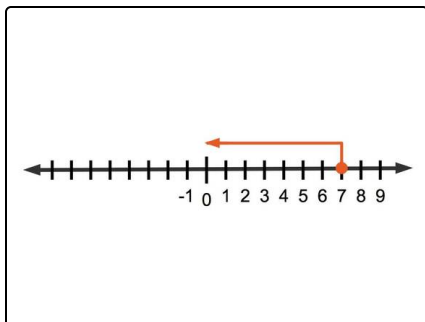


Hints for solving these problems

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Decide how much Carol's suitcase can weigh.

Hint #1



This number line models the solution set of the inequality $x + 43 \leq 50$.

Hint #2

Substitute x with each given value.

Hint #3

Two of the given values are correct solutions for the inequality.



Answers and detailed answer explanations for these problems

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Decide how much Carol's suitcase can weigh.

Answer key: B, D

x represents the possible weight of Carol's remaining suitcase.

Subtracting 43 on both sides leads to $x \leq 7$.

All solutions of this inequality can be seen on the right.

Let's check different values for x :

$$x = 7 \quad 7 + 43 = 50 \leq 50 \checkmark$$

$$x = 2 \quad 2 + 43 = 45 \leq 50 \checkmark$$

$$x = 8 \quad 8 + 43 = 51 \not\leq 50$$

$$x = 10 \quad 10 + 43 = 53 \not\leq 50$$

$$x = 12 \quad 12 + 43 = 55 \not\leq 50$$