

# Lesson 1 Multi-Step Problem Solving

## Multi-Step Example

Devin recorded the weight of his empty backpack and some items he put in it. He found it weighed 15.65 pounds. Janet packed exactly the same items in an identical backpack, but her laptop weighs 1.1 pounds less than Devin's. What is the weight of Janet's laptop? **7.EE.4a, MP 1**

Item	Weight (lb)
Empty backpack	1.75
Math book	3.2
Science book	3.5
Water bottle	1.0
Laptop	$x$

- (A) 5.1 lb
- (B) 6.2 lb
- (C) 7.3 lb
- (D) 9.45 lb

Use a problem-solving model to solve this problem.

### 1 Understand

Read the problem. Circle the information you know. Underline what the problem is asking you to find.

### 2 Plan

What will you need to do to solve the problem? Write your plan in steps.

**Step 1** Determine the value of  $x$  by writing an equation.

**Step 2** Determine the weight of \_\_\_\_\_.

### 3 Solve

Use your plan to solve the problem. Show your steps.

$$1.75 + 3.2 + 3.5 + 1.0 + x = 15.65$$

\_\_\_\_\_ +  $x$  = 15.65, so  $x$  = \_\_\_\_\_ Write and solve an equation.

6.2 - \_\_\_\_\_ = \_\_\_\_\_ Find the weight of Janet's laptop.

So, \_\_\_\_\_ is the correct answer. Fill in that answer choice.

### 4 Check

How do you know your solution is accurate?

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#### Read to Succeed!

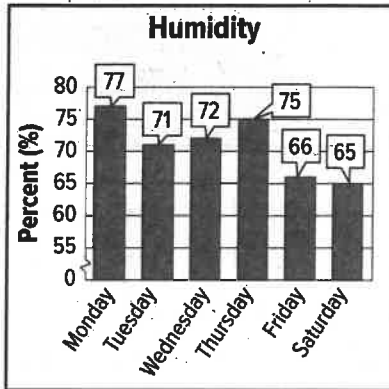


The only difference between the weight of the two backpacks and the items in them is the weight of the laptops.

# Lesson 1 *(continued)*

Use a problem-solving model to solve each problem.

- 1 Devin recorded the percent humidity Monday through Saturday as shown on the graph. The total of the humidity readings for Friday through Sunday is 195. How many percentage points higher was the humidity on Monday than on Sunday? **7.EE.4a, MP 1**



- (A) 11                      (C) 14  
 (B) 13                      (D) 20
- 3 Josiah and Perry were painting their bedroom walls, which have a surface area of 196 square feet. Josiah can paint 16 square feet in 4 minutes, while Perry can paint 7 square feet in 2 minutes. After 10 minutes, how much more total area will Josiah and Perry have left to paint? **7.RP.3, MP 2**

- 2 The table shows how much Prisha read on Saturday and Sunday. If she read at the same rate on Sunday as she did on Saturday, what time did she start reading Sunday night? **7.RP.3, MP 4**

Day	Start Time	End Time	Pages Read
Saturday	12:00 PM	12:30 PM	60
Sunday	?	8:40 PM	40

- 4 **H.O.T. Problem** The maximum speed of the El Toro roller coaster is 70 miles per hour. The difference in maximum speeds of El Toro and the T-Express roller coaster is 5 miles per hour. Using  $s$  to represent the maximum speed of T-Express, write and solve two equations that could represent this situation and tell what they mean. What additional information is needed to determine which equation is more appropriate for the problem situation? **7.EE.3, MP 6**

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