

4.3 What Operations Are Needed?



In the questions below, you will use what you have learned about operations on rational numbers to solve problems. Always ask yourself the following question:

- What operation(s) do you need to solve the problem, and how do you know?



Problem 4.3

A Three friends are going hiking with Latisha. For each of the four hikers, she buys two bottles of water and three packs of trail mix. The bottles of water cost \$1.50 each, and the packs of trail mix cost \$3.75 each.

- Can Latisha go through the express checkout lane for customers with 15 or fewer individual items?
 - Write a number sentence to show how you found the total number of items Latisha bought.
 - Write a different number sentence that shows a different way to find the total number of items.
 - Explain how you know which operation(s) to use.
- Latisha has \$60. Does she have enough money to pay for the items?

B Mr. Chan buys a roll of paper towels for \$2.19 and a bottle of window cleaner for \$2.69. In his state, there is a 4% sales tax on these items. Mr. Chan also buys a gallon of milk for \$3.95. There is no sales tax on milk. Mr. Chan has a \$5 coupon to use at the store.

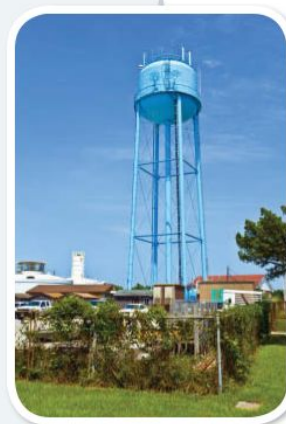
- Write a number sentence to find Mr. Chan's total bill. What is his total bill?
- Is there more than one way to compute this total?
- Explain how you know which operation(s) to use.

Problem 4.3 *continued*

- C** Eli's class held a fund raising event last month. The class's expenses were \$5.75, \$4.75, and \$3.75. The amounts of money the class raised were \$13.50, \$24.70, \$13.15, and \$19.50.
1. Write a number sentence to find how much money the class has after the fundraiser. Did the class make any money? If so, how much?
 2. Can you use two different orders of computation?
 3. Explain how you know which operation(s) to use.
- D** The following sequence of scoring occurred during a Math Fever game between the Super Brains and the Rocket Scientists.
- Super Brains: $-50, +150, -100, +250, -150$
 Rocket Scientists: $-150, +250, -50, -50, +100$
1. Write a number sentence to find each team's score. Who is ahead at this stage of the game? By how many points?
 2. Can you use a different number sentence to find each team's score?
- E** The table shows the hourly amount of water flowing into and out of a water tower for given time periods. For example, for the first 4 hours, 5,000 gallons flowed into the tower each hour.

Water Tower Water Flow

Water Flow In (gallons per hour)	Water Flow Out (gallons per hour)	Time (hours)
5,000	0	4
4,000	0	7
0	7,500	3
5,000	3,000	6.5



1. **a.** If there are 5,000 gallons of water at the start, how much is there at the end of the entire time period?
b. What number sentence shows your reasoning?
2. **a.** What was the average rate of water flow per hour in the first 11 hours?
b. What was the average rate of flow of water per hour in the last 9.5 hours?
c. At the end of the entire time period, what was the average rate of flow (in or out) per hour?

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