

1.2 Estimating Sums and Differences

It is important to know how to find exact sums and differences. It is also important to be able to make good estimates. If an exact answer is not necessary, you can solve problems more quickly by estimating. Estimates help you know whether or not an answer is reasonable.

- What are some situations in which you can estimate a sum or difference instead of finding an exact answer?

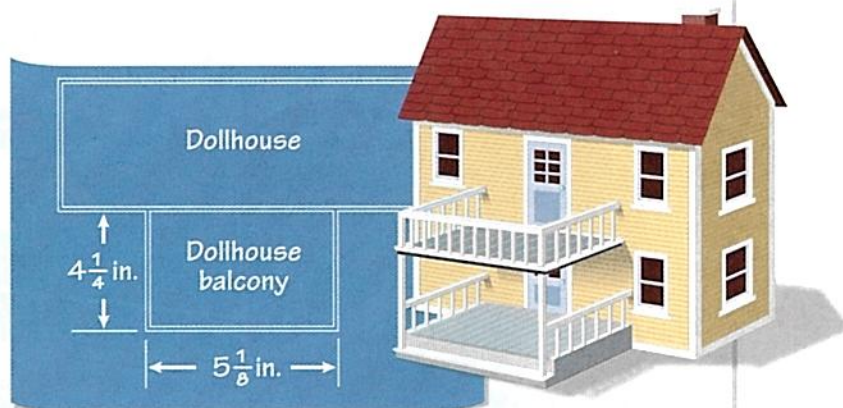
Sometimes you should **overestimate**, or give an estimate that is a bit bigger than the actual value. Overestimate to make sure you have enough. Sometimes you should **underestimate**, or give an estimate that is a bit smaller than the actual value. Underestimate to stay below a certain limit.

Problem 1.2

For Questions A–E,

- Answer the question by using estimation. Explain your reasoning.
- Explain how confident you are in your answer.
- For each estimate you make, tell whether it is an overestimate or an underestimate. Explain why you chose to overestimate or underestimate.

- A** Mrs. Edwards is building a dollhouse for her children. She needs to buy wood for the railing on the balcony.



The wood is available in 12-inch, 14-inch, and 16-inch lengths. She does not want to waste wood. What length should she buy?

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Problem 1.2 *continued*

- B** Mr. Cheng is making shades for his office. One window needs $1\frac{1}{3}$ yards of material and the other window needs $1\frac{3}{4}$ yards of material. The fabric store only sells whole-number lengths of this material. How many yards of material should Mr. Cheng buy?
- C** Mr. Aleman is the treasurer for his local scouting troop. He makes a budget for the troop. He suggests that they spend $\frac{1}{2}$ of their money on field trips, $\frac{1}{3}$ of their money on events, and $\frac{1}{4}$ of their money on scholarships. He wants to save the rest of the troop's money for next year. What do you think of Mr. Aleman's budget?
- D** Jasmine is making jam to enter in the state fair.
1. Jasmine's raspberry jam recipe calls for $4\frac{1}{3}$ quarts of raspberries. She has picked $3\frac{1}{2}$ quarts of raspberries. About how many more quarts of raspberries should she pick?
 2. Jasmine's mixed berry jam recipe calls for $6\frac{2}{3}$ quarts of berries. She has $3\frac{1}{3}$ quarts of strawberries and $2\frac{7}{8}$ quarts of blackberries. Does Jasmine have enough berries? If not, about how many more quarts of berries does she need to pick?
- E** The gas tank on Priya's pontoon boat can hold 5 gallons. It is completely empty. Priya needs a full tank for the day's activities. She adds $2\frac{1}{4}$ gallons from a gas canister and then takes the boat to a nearby marina to fill it up. She has to pay ahead. Priya wants the tank as full as possible but does not want to overpay. How many gallons should Priya ask for?



A C E Homework starts on page 18.