

**CHECK UP 6.28: SOLVING FOR UNKNOWNNS**

Solve for the ? (unknown) value.

$100:200::?:2$  \_\_\_\_\_  $50:150::?:3$  \_\_\_\_\_

$2:1::400:?$  \_\_\_\_\_  $250:1::500:?$  \_\_\_\_\_

$300:?::100:1$  \_\_\_\_\_

**CRITICAL THINKING**

Did you notice how similar the last two methods are? Why does cross-multiplying work?

In Check Up 6.28, try solving for the unknown value. Try using each of the different methods mentioned earlier, and then use the one you find easiest to determine the value.

**CRITICAL THINKING**

Sometimes it is easier to leave a calculation in a fractional form, and sometimes it is better to work with a decimal. When would you use a decimal rather than a fraction? When would it be easier to write a numerical equation as a fraction, and when would it be easier as a ratio?

**S U M M A R Y**

- Understanding basic math concepts is essential for calculating dosages safely.
- A fraction is a part of a whole. The numerator is number on the top. The denominator is the number on the bottom. The fraction is called a proper fraction if the numerator is smaller than the denominator. An improper fraction means that the numerator is larger than the denominator
- A common denominator is a number that is a common multiple of two (or more) denominators. The lowest number into which both denominators can be divided (keeping the fraction small makes it easier to work with) is called the least common denominator (LCD).
- A mixed number is a whole number plus a fraction.
- Factors are used to determine the largest common divisor to divide the dividend.
- A decimal is similar to a fraction, but with 10, 100, 1,000, and so on in the denominator. Moving the decimal by one place increases or decreases the value of the number by 10, moving it two places changes the value by 100, and so forth. The zero to the left of the decimal point is very important; it shows that the dosage is very small.
- Ratios and proportions are ways to compare items. A proportion is a statement to say that two ratios (mathematical relationships) are equal.