Key point: *Floating-point numbers can be converted into integers using explicit casting.*

- Java automatically converts an integer to a floating-point value when both types are operands of a computation. For example, **3 * 4.5** becomes **3.0 * 4.5**.
- You can assign a value to a numeric variable whose type supports a larger range of values. For example, you can assign a **long** value to a **float** variable.
- You must use a *cast* to assign value to a variable having a smaller range.
- Casting is an operation that converts a value of one data type into a value of another data type.
- The syntax for casting a type is to specify the target type in parentheses, following by the variable's name or the value to be cast. For example,

```
System.out.println((int)1.7);          //Displays 1
System.out.println((double)1/2);       //Displays 0.5
```

Listing 2.8 SalesTax.java

```
1  import java.util.Scanner;
2
3  public class SalesTax {
4      public static void main(String[] args) {
5          Scanner input = new Scanner(System.in);
6
7          System.out.print("Enter purchase amount: ");
8          double purchaseAmount = input.nextDouble();
9
10         double tax = purchaseAmount * 0.06;
11         System.out.println("Sales tax is $" + (int)(tax * 100) / 100.0);
12     }
13 }
```

```
run:
Enter purchase amount: 197.55
Sales tax is $11.85
BUILD SUCCESSFUL (total time: 16 seconds)
```

tax * 100 is **1185.3**
(int)(tax * 100) is **1185**
(int)(tax * 100) / 100.0 is **11.85**