34. There are two types of import statements: specific import and wildcard import. A specific import specifies a single class in the import statement; a wildcard import imports all the classes in a package.

35. Programming errors can be categorized into three types: syntax errors, logic errors, and compile errors. Errors that occur during compilation are compile errors. Runtime errors are errors that cause a program to terminate normally. Logic errors occur when a program does not perform the way it is intended to.

**Test Questions**

Do the test questions for this chapter online at [www.cs.armstrong.edu/liang/intro9e/test](http://www.cs.armstrong.edu/liang/intro9e/test).

**Programming Exercises**

**Note**

Solutions to even-numbered exercises are on the Companion Website. Solutions to all exercises are on the Instructor Resource Website. The level of difficulty is rated easy (no star), moderate (*), hard (**), or challenging (***)

1.1 (Display three messages) Write a program that displays Welcome to Java, Welcome to Computer Science, and Programming is fun.

1.2 (Display five messages) Write a program that displays Welcome to Java five times.

*1.3 (Display a pattern) Write a program that displays the following pattern:

```
   J A V V A
   J A A V V A A
   J J AAAAA V V AAAAA
```

1.4 (Print a table) Write a program that displays the following table:

<table>
<thead>
<tr>
<th>a</th>
<th>a^2</th>
<th>a^3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>27</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>64</td>
</tr>
</tbody>
</table>

1.5 (Compute expressions) Write a program that displays the result of

\[ 9.5 \times 4.5 - 2.5 \times 3 \]

1.6 (Summation of a series) Write a program that displays the result of

\[ 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 \]

1.7 (Approximate \( \pi \)) \( \pi \) can be computed using the following formula:

\[
\pi = 4 \times \left( 1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \frac{1}{11} + \ldots \right)
\]

Write a program that displays the result of

\[ 4 \times \left( 1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \frac{1}{11} \right) \]

and

\[ 4 \times \left( 1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \frac{1}{11} + \frac{1}{13} \right) \]

Use 1.0 instead of 1 in your program.