Java 第一次作业

2.2 (Compute the volume of a triangle) Write a program that reads in the length of sides of an equilateral triangle and computes the area and volume using the formulas:

In [15]:
```
import java.util.Scanner;

// 求三棱体的表面积与体积

// 输入边长
System.out.println("Enter length of the sides and height of the equilateral triangle:
Scanner input = new Scanner(System.in);
String number = input.nextLine();
String[] strs = number.split("\\.");
int length = new Integer(strs[0]);
int height = new Integer(strs[1]);

// 计算面积体积
double area = Math.sqrt(3) / 4 * length * length;
double volumn = area * height;
System.out.println("The area is " + area);
System.out.println("The volumn of the Triangular prism is " + volumn);

/*
// 求正四面体的表面积与体积

// 输入边长
System.out.println("Enter length of the sides and height of the equilateral triangle:
Scanner input = new Scanner(System.in);
int length = input.nextInt();

// 计算面积体积
double area = Math.sqrt(3) / 4 * length * length;
double volumn = Math.sqrt(2) / 12 * length * length * length;
System.out.println("The area is " + area);
System.out.println("The volumn of the Triangular prism is " + volumn);
*/
```

```
Enter length of the sides and height of the equilateral triangle:
3.5
The area is 3.897114317029974
The volumn of the Triangular prism is 19.48557158514987
```

2.6 (Multiply the digits in an integer) Write a program that reads an integer between 0 and 1000 and multiplies all the digits in the integer.

In [4]:
```
import java.util.Scanner;
// 输入数字
System.out.println("Enter a number between 0 and 1000: ");
Scanner input = new Scanner(System.in);
int number = input.nextInt();
int total = 1;

while (number > 0){
    total = number % 10 * total;
    number = number / 10;
}
System.out.println(total);
```

```
Enter a number between 0 and 1000:
999
729
```

2.7 (Find the number of years) Write a program that prompts the user to enter the minutes (e.g., 1 billion), and displays the number of years and remaining days for the minutes.

In [8]:
```
import java.util.Scanner;
// 输入时间
System.out.println("Enter the number of minutes: ");
Scanner input = new Scanner(System.in);
int minute = input.nextInt();
int day = minute / (24 * 60) % 365;
int year = minute / (24 * 60 * 365);
System.out.println(minute + " minutes is approximately " + year + " years and " + day
```

```
Enter the number of minutes:
1000000000
1000000000 minutes is approximately 1902 years and 214 days.
```

2.13 (Financial application: compound value) Suppose you save $100 each month in a savings account with annual interest rate 3.75\%. Thus, the monthly interest is 0.0375/12 = 0.003125. Write a program that prompts the user to enter a monthly saving amount and displays the account value after the sixth month.

In [23]:
```
import java.util.Scanner;
// 输入每月存钱数
System.out.println("Enter the monthly saving amount: ");
Scanner input = new Scanner(System.in);
double money = input.nextDouble();
String[] str = {"first","second","third","fourth","fifth","sixth"};

// 设定月利息、账户总额
double monInterest = 0.003125;
double totalAccount = 0;

for(int i = 0; i < 6; i++){
    totalAccount = (money + totalAccount) * (1 + monInterest);
    System.out.println("After the " + str[i] + " month, the account value is " + tota
}
```

```
Enter the monthly saving amount:
100
After the first month, the account value is 100.3125
After the second month, the account value is 200.9384765625
After the third month, the account value is 301.8789093017578
After the fourth month, the account value is 403.1347808933258
After the fifth month, the account value is 504.70707708361743
After the sixth month, the account value is 606.5967866995037
```

2.14 (Health application: computing BMI) Write a program that promptsthe user to enter a weight in pounds and height in inches and displays the BMI.

In [18]:
```
import java.util.Scanner;
// 输入体重
System.out.println("Enter weight in pounds: ");
Scanner input = new Scanner(System.in);
double weight = input.nextDouble() * 0.45359237;

// 输入身高
System.out.println("Enter height in inches: ");
double height = input.nextDouble() * 0.0254;

double BMI = weight / (height * height);
System.out.println("BMI is " + BMI);
```

```
Enter weight in pounds:
95.5
Enter height in inches:
```

```
50
BMI is 26.857257942215885
```