1. import java.util.Scanner;

public class TriangleArea {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the base of the triangle: ");

double base = scanner.nextDouble();

System.out.print("Enter the height of the triangle: ");

double height = scanner.nextDouble();

double area = 0.5 \* base \* height;

System.out.println("The area of the triangle is: " + area);

scanner.close();

}

}

2. // Example variables

double x = 2.0, y = 3.0, z = 4.0, c = 5.0, s = 6.0;

// a. a = √(x^5 - 6) / 4

double a = Math.sqrt(Math.pow(x, 5) - 6) / 4;

// b. b = x^y - 6x

double b = Math.pow(x, y) - 6 \* x;

// c. c = 4c(c(z/5)) - s^2

double cResult = 4 \* c \* Math.cos(Math.pow(z / 5, 2)) - Math.pow(s, 2);

// d. d = x^4 - √(6x - y^3)

double d = Math.pow(x, 4) - Math.sqrt(6 \* x - Math.pow(y, 3));

// e. e = 1 / y - 1 / (x - 2y)

double e = 1 / y - 1 / (x - 2 \* y);

// f. f = 7(cos(√(5 - s) - 4))^3

double f = 7 \* Math.pow(Math.cos(Math.sqrt(5 - s) - 4), 3);

3. import java.util.Scanner;

public class BusVans {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the number of people signed up: ");

int people = scanner.nextInt();

int busCapacity = 45;

int buses = people / busCapacity;

if (people % busCapacity > 0) {

buses++;

}

int peopleInVans = people % busCapacity;

System.out.println("Number of buses needed: " + buses);

System.out.println("Number of people needing vans: " + peopleInVans);

scanner.close();

}

}

4. int i = 5;

int j = 6;

boolean true\_false;

true\_false = (j < 5); // false

true\_false = (j > 3); // true

true\_false = (j < i); // false

true\_false = (i < 5); // false

true\_false = (j <= 5); // false

true\_false = (6 < 6); // false

true\_false = (i != j); // true

true\_false = (i == j || i < 50); // true

true\_false = (i == j && i < 50); // false

true\_false = (i > j || true\_false && j >= 4); // true (true\_false is true from previous step)

true\_false = (!(i < 2 && j == 5)); // true

true\_false = !true\_false; // false

5.