Variables Exercise: Constants and Math Functions.

1. **Create a variable height that holds a real value. In addition, create a constant for the base of 10.5 . Write a program that prompts for the height of a triangle. The program will calculate and output the area of the triangle.**

Sample Output
Enter the height of a right-angled triangle: **20.5** **The area a the triangle with the height of 20.5 and base of 10.5 is 107.625**

```
            double height;
            System.out.println("Enter the height of a right-angled triangle:");
            height = input.nextDouble();
            final double BASE;
            BASE = 10.5;
            double area;
            area = BASE*height*1/2;
            System.out.println("The area a the triangle with the height of " +
height + " and base of " + BASE + " is " +  area);
```

2. **Create constants for the following information: The street address HB, the postal code for HB, the City, and the province. Using the constants, output the full address of HB.**

```
            Final String STREETADDRESS;
            STREETADDRESS = "415 Great Lakes Dr";
            final String POSTALCODE;
            POSTALCODE = "L6R 2Z4";
            final String CITY;
            CITY = "BRAMPTON";
            final String PROVINCE;
            PROVINCE = "ONTARIO";
                  System.out.println(STREETADDRESS + "\n" + POSTALCODE + "\n" +
CITY + "\n" + PROVINCE);
```

3. **Write a program that creates a variable for the radius of a circle. Create a constant for pi. Write a program that prompts for a radius and calculates the area of the circle.**

Sample Output
Enter the radius of a circle: **2.4** **The area of a circle with a radius of 2.4 is 18.1**

```
            final double PI;
            PI=3.14159;
            double radius;
            System.out.println("Enter the radius of the circle:");
            radius = input.nextDouble();
            double area;
            area = PI*Math.pow(radius,2);
                  System.out.println("The area of a circle with a radius of " +
      radius + " is " + area );
```

4. **Write a program that creates a variable for the price of an item. Create constants for HST (.13) and prompt for a price and calculates and outputs the final price.**

Sample Output
Enter the price of an item: **5.47** **The final price of an item with a subtotal of $5.47 is $6.18**

```
            final double HST;
            HST= 0.13;
            double price;
            System.out.println("Enter the price of an item:");
            price = input.nextDouble();
            double tax;
            tax = price*HST;
            double total;
            total = price+tax;
            int place;
            place = 100;
          System.out.println("The final price of an item with a subtotal of $" +
price + " is $" + Math.round(total*place)/100.0);
```