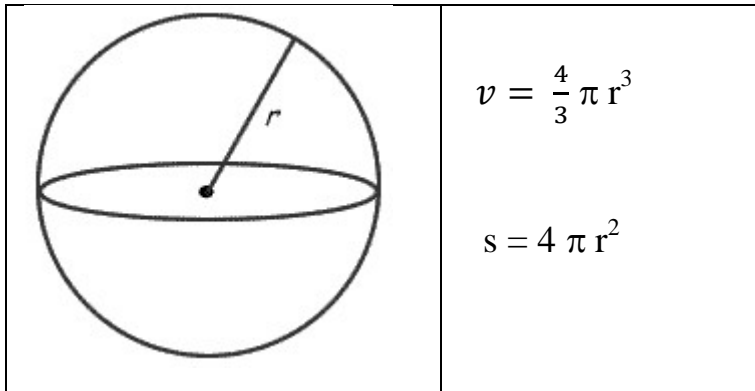


Task 01:

Write a complete Java program that declares and initializes the **volume** v of a sphere by a value in cubic centimeters. It then displays the volume in cubic centimetres and the **surface area** s of the sphere in square centimeters.



Sample program outputs:

Volume = 15.75 Cubic cm Surface Area = 30.39 Square cm	Volume = 20.00 Cubic cm Surface Area = 35.63 Square cm	Volume = 6.50 Cubic cm Surface Area = 16.84 Square cm
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Task 02:

Inflation is defined as the loss of purchasing power of a given currency over time. Let us assume that money loses 3% of its value every year. This means that an amount of money next year will equal to only 97% of its value this year.

Let us define the following equation to calculate inflation:

$$OtherAmount = CurrentAmount * 0.97^{OtherYear - CurrentYear}$$

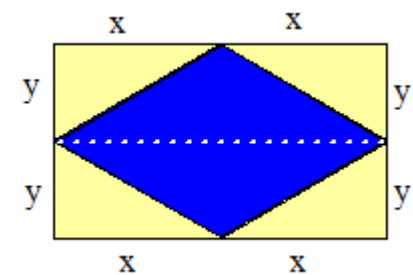
Write a complete Java program that declares and initializes a variable **currentAmount** to an amount in Saudi Riyals. It then calculates and displays:

- the equivalent amount in a given year in the future.
- the equivalent amount in a given year in the past.

Sample Program outputs [assuming the current year is 2017]:

Current year = 2017 Current amount = 2000.00 Saudi Riyals Amount in year 2020 = 1825.35 Saudi Riyals Amount in year 2015 = 2125.62 Saudi Riyals	Current year = 2017 Current amount = 3500.00 Saudi Riyals Amount in year 2020 = 3194.36 Saudi Riyals Amount in year 2015 = 3719.84 Saudi Riyals
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Task 03: Consider the following figure:



Write a Java program that declares and initializes the lengths *x* and *y*. It then displays the lengths *x* and *y*, and finally it calculates and displays the area and the perimeter of the blue figure. Assume that the lengths *x* and *y* are in centimeters.

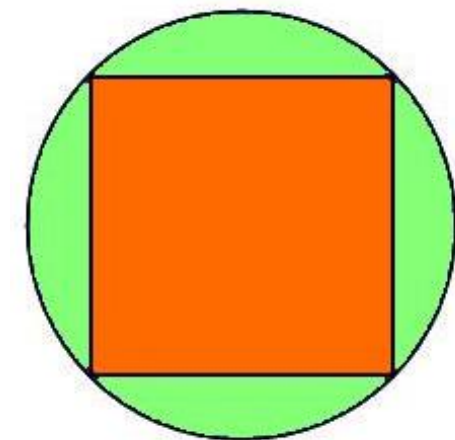
Hint: Area of triangle is (base * height)/2

Sample program outputs:

Length x = 4.00 cm Length y = 3.00 cm Perimeter of Blue area = 20.00 cm Blue area = 24.00 square cm	Length x = 12.00 cm Length y = 5.00 cm Perimeter of Blue area = 52.00 cm Blue area = 120.00 square cm	Length x = 3.67 cm Length y = 2.45 cm Perimeter of Blue area = 17.65 cm Blue area = 17.98 square cm
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Task04: An orange square is inscribed inside a circle as shown in the diagram below. Write an interactive Java program that prompts for and reads the area of the square in square centimeters. It then calculates and prints the area of the green part in square centimeters. Your program must catch **java.util.InputMismatchException** and display an appropriate error message in case such an Exception is thrown.

Note: Your program must not use selection statements.



Sample program runs:

Enter the area of the square [sq cm]: t Error: Invalid input	Enter the area of the square [sq cm]: 16.0 Green area = 9.13 square cm
Enter the area of the square [sq cm]: 26.75 Green area = 15.27 square cm	Enter the area of the square [sq cm]: -56.0 Green area = NaN square cm