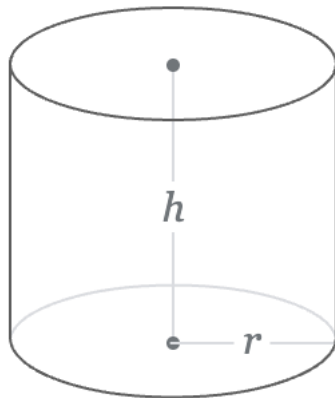


1. Write a program that calculates the volume of a cylinder.



Your program should create two functions: 1) a function named `calcArea(r)` that accepts an integer number for the radius of a circle, calculate the area of the cross section using this formula  $A=\pi r^2$ , and returns the calculated area and 2) a function named `calcVol(area, h)` that accepts two parameters for the area of cross section and an integer number for the height, calculates the volume, and returns the calculated volume including the fractional part to two decimal points. Note that your programs need to get the input from users using `input` function.

When you run your program, the output should look exactly like the following:

```
Type integer number for radius:3
Type integer number for height:10
The volume for a cylinder with radius 3 and height 10 is
282.74
```

2. Write a program which calculates the monthly payment  $p$  for a loan using the following formula:

$$p = \frac{rP}{n \left[ 1 - \left( 1 + \frac{r}{n} \right)^{-nt} \right]}$$

$$I = npt - P$$

Your program should have a function named `calcPayment(P, r, t, n)` that accepts four parameters and return the calculated monthly payment including the fractional part to two decimal points.

It should ask the user for:

the principal  $P$  (note this is a capital  $P$ , don't get it confused with the payment amount  $p$ )

the annual interest rate  $r$  (float number in percentage)

the number of years  $t$

the number of payments per year  $n$  (typically 12)

Note that your programs need to get the input from users using `input` function and all input numbers should be integers except the annual interest rate.

When you run the script, the output should look exactly like the following:

Amortization Calculator

Principal,  $P = 400000$

Annual Interest rate (10%),  $r = 6.5$

Number of years,  $t = 30$

Number of payments per year,  $n = 12$

The monthly payment will be  $p = 2528.27$