Lab01 – First Program

1. Calculate the volume of the cylinder. $Volume = \frac{\pi}{4} d^2 h$

   I/O Example

   Enter cyliner diameter: 5
   Enter cyliner height: 3
   Cylinder volume =
   58.9049

2. Calculate the volume of cuboid. Volume = length $*$ width $*$ height

   I/O Example

   Enter cuboid length: 2
   Enter cuboid width: 3
   Enter cuboid height: 4
   cuboid volume =
   24

3. Represent a point (x,y) in cylindrical form (ρ,ϕ) $\rho = \sqrt{x^2 + y^2}$ $\varphi = tan^{-1}\left(\frac{y}{x}\right)$

   I/O Example

   Enter X: 10
   Enter Y: 6
   Rou =
   11.6619
   Phi in radian =
   0.5404
   Phi in degree =
   30.9638

4. Calculate the distance between two points (x1 , y1) and (x2 , y2)

   $dist = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

   I/O Example

   Enter X1: 2
   Enter Y1: 4
   Enter X2: 3
   Enter Y2: 5
   Distance =
   1.4142

5. Given number of minutes, calculate the number of hours and the remaining minutes.
   For example, 385 minutes = 6 hours + 25 minutes

   I/O Example

   Enter minutes: 385
   Hours =

6
Minutes =
25

6. Calculate the equivalent of N days in years, months and days. (1 year = 365 day) (1 month = 30 day) For example, 3724 day = 10 years + 2 months + 14 day

I/O Example

Enter number of days: 3724
Years =
10
Months =
2
days =
14

7. Calculate the number of garages needed for parking of X cars if each garage capacity is Y cars. For example, If X = 18 cars & Y =7 car, the number of garages needed is 3.

I/O Example

Enter number of cars: 18
Enter garage capacity: 7
number of garages =
3

8. A Spherical-shape glass of radius (r = 3) inches. If water is poured into the glass at (rate = 2) gallons per hour, write a program to calculate how long it takes to fill in the glass.
1 $gallon$ = 7.5 $feet^3$ and 1 $feet$ = 12 $inch$ (Note: spherical volume $= \frac{4}{3}\pi r^3$)

I/O Example

Enter spherical raduis in inch: 3
Enter water rate in gallons per hour: 2
time in hours =
0.0044
time in minutes =
0.2618
time in seconds =
15.7080