Lab 1

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Question 1a: Write commands to compute the surface area and volume of a cylinder with diameter being the number of your birth month (eg 5 for May) in meters and height being the number of your birth day (6 meters. Show both the commands you entered and the resulting outputs

```
r = 10/2
```

```
r = 5
```

```
h = 27
```

```
h = 27
```

```
Surface_Area = (2*pi*r*h) + ((pi*r^2)*2)
```

```
Surface_Area = 1.0053e+03
```

```
Volume = pi*r^2*h;
vpa(Surface_Area, 7)
```

```
ans = 1005.31
```

```
vpa(Volume,7)
```

```
ans = 2120.575
```

Question 1b: Use MATLAB to find the height of a cylinder that has volume 10 and diameter 2. Round the answer to 3 decimal places

```
v = 10
```

```
v = 10
```

```
r = 2/2
```

```
r = 1
```

```
Hight = v/pi*r^2;
vpa(Hight, 4)
```

```
ans = 3.183
```

Question 2: As above, set a seed using your four-digit birthday. Create a command to round the following to nearest(200*rand()) decimal places. |+&|(, - +$/) 0+(√$234) .

```
rng(1027)
```

```
me = nearest(200*rand());
```

```
me = 22
```

```
vpa(abs(-4)*((9/5)-2*pi)/7-(sqrt(2)+exp(3)), me)
```

```
ans = −24.061570661091955969 37
```

Question 3:

```
syms t
syms s
s(t) = 2*sin(pi*t)+2*cos(pi*t);
v1 = (s(2) - s(1))/(2-1);
v2 = (s(1.1) - s(1))/(1.1-1);
v3 = (s(1.01) - s(1))/(1.01-1);
v4 = (s(1.001) - s(1))/(1.001-1);

vpa(v1)
```

```
ans = 4.0
```

```
vpa(v2)
```

```
ans = −5.2014702134020199243746550 11244
```

```
vpa(v3)
```

```
ans = −6.1834638887719701679749021054166
```

```
vpa(v4)
```

```
ans = −6.2733053754754589275560889683921
```

instantaneous velocity is -6.3