```
clc
clear all


% Process Type: Manual Grinding Operation
% Material: 304 Stainless Steel Type


%Input Parameters
%Dimension of parameters, All dimensions are in mm


L=12.7;         %Length of workpiece in mm
W=12.7;         %Width of workpiece in mm
H=12.7;         %Height of workpiece in mm
D=6.35;         %Diameter of cutting wheel in mm
n=5000;         %Rotational cutting speed of cutting wheel in rpm
Vw=0.5;         %Workpiece feed in m/s
row=0.008;      %Density of 304 Stainless Steel material in g/mm3
del_vol=3.2258;     %Volume removed per rotation of grinding in mm
del_t= 60;      %Grinding time in sec
F_t=0.25;       %Tangential force in N
F_n=2;          %Normal force in N


% Transformation Equation


Vs= ((pi*D*n)/(1000*60))  %Cutting speed of abrasive wheel in mm/s
ae=((del_vol)/(L*W))        %depth of cut per grinding cycle in mm
heq=((ae*Vw)/Vs)            %Equivalent chip thickness in mm
Q=(del_vol/del_t)           %Material removal rate in mm3/s
ec=((F_t*Vs)/Q)             %Specific grinding energy in J/mm3
P=F_t*Vs                    %Grinding power in Watt
meu= F_t/F_n                %Friction Co-efficient
s_r= Q/F_n                  %Stock removal rate in mm3/Ns
syms x
Ra= (x/8)                   %Average roughness in um
int (Ra,x,2.6,4.1)
```