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MA202 Lab 8

Exercise 1

```
l=-10;
u=10;
k=90;
V = [0.01,0.1,1,10,100];
for i=1:1:length(V)
f=@(x) sin(V(i)*x)/x;
T(l,u,k,f);
S_1(l,u,k,f);
S_3(l,u,k,f);
end
```

```
 0.197667
 0.196926
 0.048306
 1.869919
 1.862537
 0.456319
 3.093827
 3.020401
 0.661045
 0.910042
 0.156204
 0.625833
 -0.229831
 0.780508
 -0.170446
```

Exercise 2

```
l=0;
u=5*pi;
k=90;
V = [0.01,0.1,1,10,100];
for i=1:1:length(V)
g=@(x) exp(sin(V(i)*x));
T(l,u,k,g);
S_1(l,u,k,g);
S_3(l,u,k,g);
end
```

```
 17.006008
 17.006004
 4.251510
 31.043536
 31.043790
 7.760376
 22.113534
 22.118611
```

```
5.518232
19.887316
19.887316
4.971652
19.887316
19.887316
4.971652
```

```
function T(l,u,V,f)
h=(u-l)/V;
sum=0;
for i=1:1:V-1
if l+i*h ~= 0
sum = sum + f(l+i*h);
end
end
result = h/2*(f(l)+f(u)+2*sum);
fprintf('\n %f',result);
end
function S_1(l,u,V,f)
h=(u-l)/V;
o=0;
e=0;
for k=1:1:V-1
x(k)=l+k*h;
y(k)=f(x(k));
if rem(k,2)==1 && x(k) ~= 0
o=o+y(k);
elseif x(k) ~= 0
e=e+y(k);
end
end
answer=h/3*(f(l)+f(u)+4*o+2*e);
fprintf('\n %f',answer);
end
function S_3(l,u,V,f)
h=(u-l)/V;
o=0;
m=0;
for k=1:1:V-1
x(k)=l+k*h;
y(k)=f(x(k));
if rem(k,3)==0 && x(k) ~= 0
m=m+y(k);
elseif x(k) ~= 0
end
end
answer=(3*h/8)*(f(l)+f(u)+3*o+2*m);
fprintf('\n %f',answer);
end
```