**% Name (first and last)**

**% CSC 2262**

**% cs2262xx**

**% Sample 8c**

**global accuracy;**

**a = 1;**

**b = 3;**

**accuracy = 1e-4;**

**g = @(x) x\*(x-1)^3/(x^2-2\*x+5);**

**h = @(x) (x+7)/(1+1/3\*x\*sin(pi/4\*(x-1)));**

**v = @(x,y) 0;**

**w = @(x,y) y+1;**

**f = @(z,x,y) (x\*y\*z+2\*x+y^2).\*exp(z) ./ sqrt(3\*x^5+2\*y^4+2\*z.^3+7);**

**% First call of quad which does the first (outer) integral**

**mass = quad('middle',a,b,accuracy,[],'inner',g,h,f,v,w);**

**fprintf('mass = %.3f\n',mass);**

**% function middle**

**% Does the second (middle) integral by setting up the second call of quad**

**% and then making the second call of quad**

**function middle\_integral = middle(x,inner,g,h,f,v,w)**

**global accuracy;**

**n = length(x);**

**for(k = 1:n)**

**c = g(x(k));**

**d = h(x(k));**

**% Second call of quad which does the second (middle) integral**

**middle\_integral(k) = quad(inner,c,d,accuracy,[],x(k),f,v,w);**

**end**

**% function inner**

**% Does the third (inner) integral by setting up the third call of quad**

**% and then making the third call of quad**

**function inner\_integral = inner(y,x,f,v,w)**

**global accuracy;**

**n=length(y);**

**for(k = 1:n)**

**lower = v(x,y(k));**

**upper = w(x,y(k));**

**% Third call of quad which does the third (inner) integral**

**inner\_integral(k) = quad(f,lower,upper,accuracy,[],x,y(k));**

**end**