

Contents

- [Make a mesh with a single convex](#)
- [Add four coordinates](#)
- [Add a single tetrahedron](#)
- [Make a mesh fem](#)
- [Provide an integration method](#)
- [Normals via gf_mesh_get](#)
- [Normals via gf_mesh_im_get](#)
- [Try the fourth face](#)

```
trace on;
```

Make a mesh with a single convex

```
m2=gf_mesh('empty',3);
```

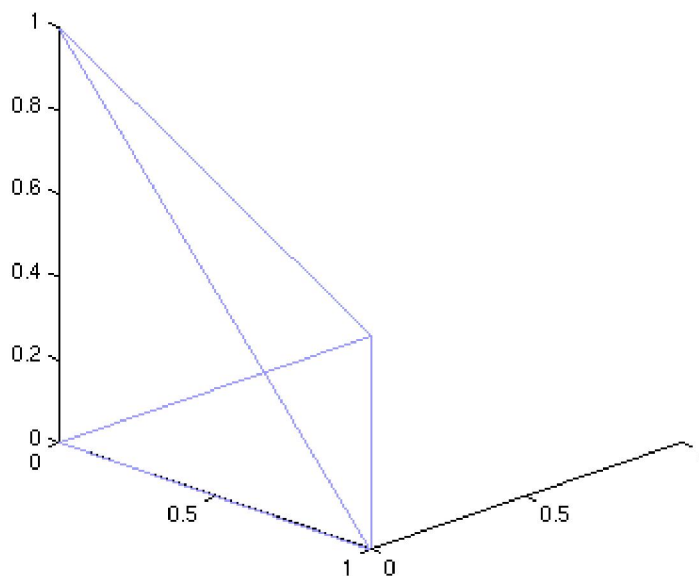
Add four coordinates

```
pt1=gf_mesh_set(m2,'add point',[1;0;0]);
pt2=gf_mesh_set(m2,'add point',[0;1;0]);
pt3=gf_mesh_set(m2,'add point',[0;0;1]);
pt4=gf_mesh_set(m2,'add point',[0;0;0]);
```

Add a single tetrahedron

```
gt=gf_geotrans('GT_PK(3,1)');
pts=gf_mesh_get(m2,'pts',[pt1,pt2,pt3,pt4]);
cv1=gf_mesh_set(m2,'add convex',gt,pts);
gf_plot_mesh(m2);
hold on;
view(45,20);
axis equal;
```

plotting mesh...



Make a mesh fem

```
mf2=gf_mesh_fem(m2,1);
gf_mesh_fem_set(mf2,'fem',gf_fem('FEM_PK_DISCONTINUOUS(3,0)'));
```

Provide an integration method

```
mim=gf_mesh_im(m2,gf_integ('IM_NC(3,3)'));
```

Normals via gf_mesh_get

```
disp('Normal of face 1 is:');
n1=gf_mesh_get(m2,'normal of face',1,1)
disp('Normal of face 2 is:');
n2=gf_mesh_get(m2,'normal of face',1,2)
disp('Normal of face 3 is:');
n3=gf_mesh_get(m2,'normal of face',1,3)
disp('Normal of face 4 is:');
n4=gf_mesh_get(m2,'normal of face',1,4)
```

Normal of face 1 is:

n1 =

```
-1      0      0
```

Normal of face 2 is:

n2 =

```
0      -1      0
```

Normal of face 3 is:

n3 =

```
0      0      -1
```

Normal of face 4 is:

n4 =

```
0.5774      0.5774      0.5774
```

Normals via gf_mesh_im_get

This should also list integrals which are proportional to the normals, (area of each face is 1/2)

```
gf=gf_eltm('normal');

disp('normal 1');
i1=gf_mesh_im_get(mim,'eltm',gf,1,1)'
disp('normal 2');
i2=gf_mesh_im_get(mim,'eltm',gf,1,2)'
disp('normal 3');
i3=gf_mesh_im_get(mim,'eltm',gf,1,3)'
```

normal 1

i1 =

```
-0.5000      0      0
```

normal 2

i2 =

```
0      -0.5000      0
```

normal 3

```
i3 =
```

```
0      0    -0.5000
```

Try the fourth face

```
disp('normal 4');  
i4=gf_mesh_im_get(mim,'eltm',gf,1,4)'
```

```
Argument 5 is out of bounds : 4 not in [1...3]
```

Published with MATLAB® 7.0.4