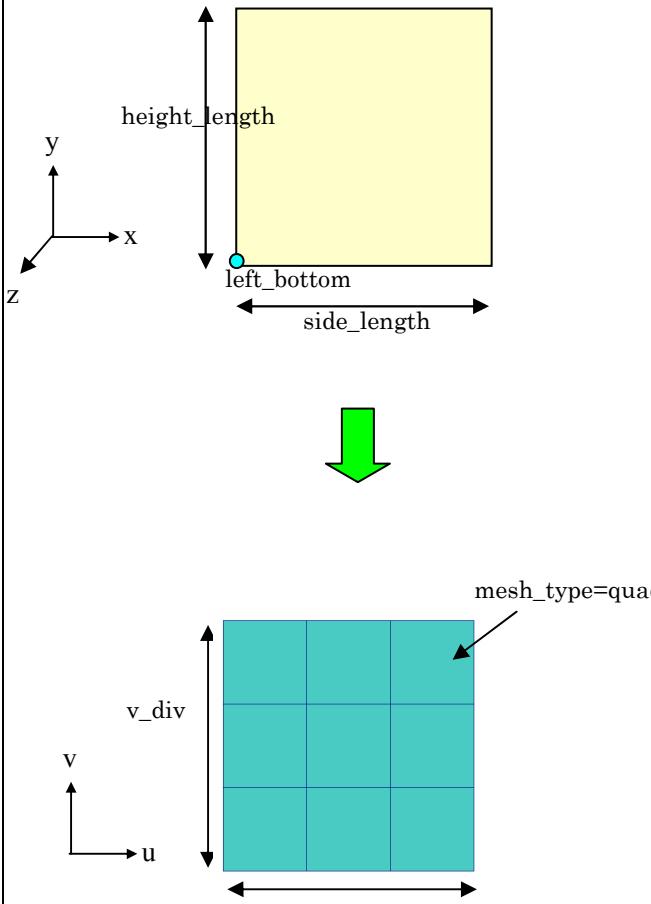
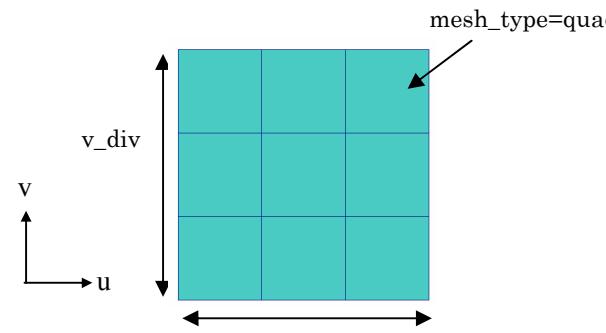
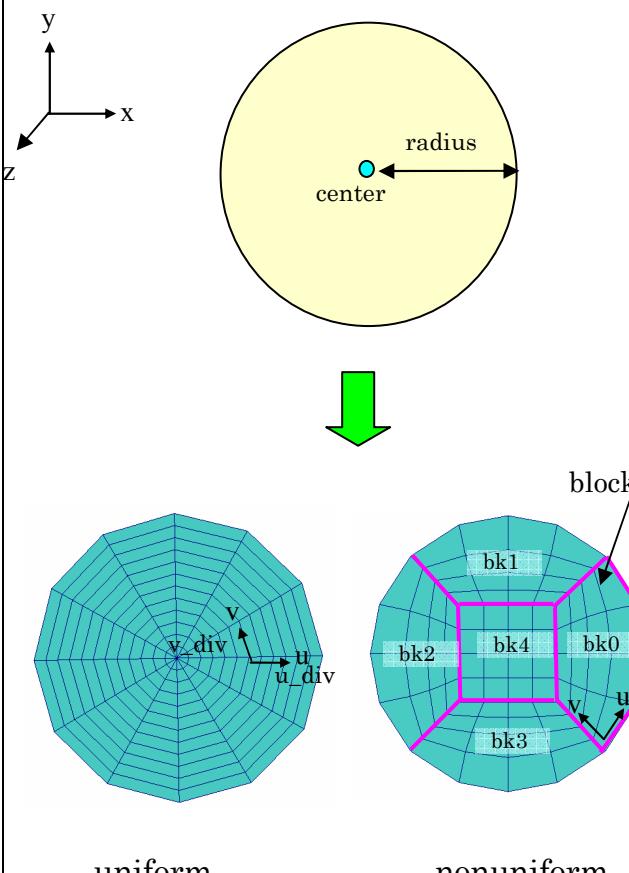
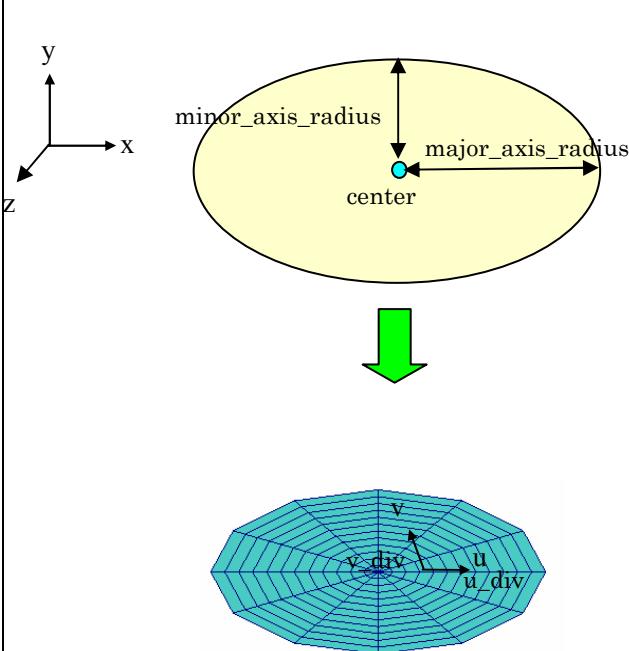
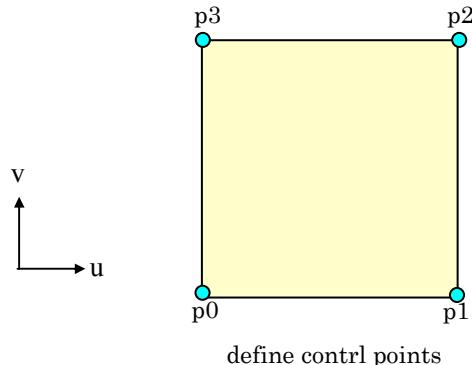
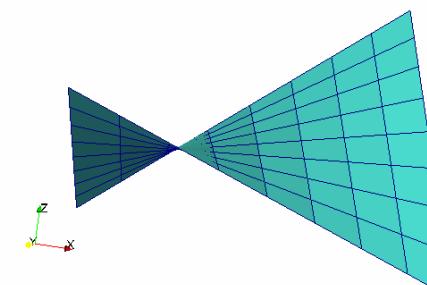


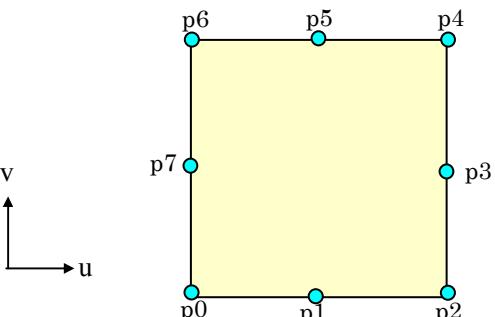
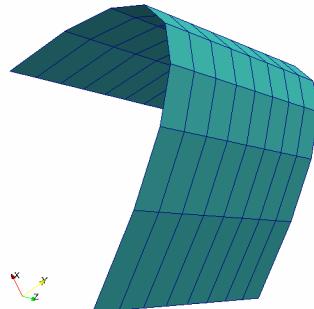
No	Case study	content	exsample source																																												
1	rectangle	 <p>The diagram shows a yellow rectangle in a 3D space defined by axes x, y, and z. The rectangle's width is labeled 'side_length' and its height is labeled 'height_length'. The bottom-left corner is marked with a blue dot and labeled 'left_bottom'. A large green arrow points downwards from the rectangle to its corresponding mesh representation.</p>  <p>The mesh below the rectangle consists of 9 smaller squares arranged in a 3x3 grid. It is labeled 'mesh_type=quad'. The vertical axis is labeled 'v' and the horizontal axis is labeled 'u'. The number of divisions is labeled 'v_div' and 'u_div'.</p>	<pre>[shape] name=test1 geometry_type=rectangle side_length = 10 height_length = 10 left_bottom=10.0 10.0 0.0 [operation] format = command &lt;data&gt; MESH_CREATE, input_name=test1, mesh_type=quad, u_div=3, v_div=3, mesh_name="AA" MESH_PRINT, input_mesh_name="AA", format=vtu, output_name="out.vtu" &lt;/data&gt;</pre> <p><b>[shape]command</b></p> <table border="1"> <thead> <tr> <th>No</th> <th>key</th> <th>default value</th> <th>contents of the value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>name</td> <td>no default</td> <td>name of shape</td> </tr> <tr> <td>2</td> <td>geometry_type</td> <td>no default</td> <td>"rectangle"</td> </tr> <tr> <td>3</td> <td>side_length</td> <td>1.0</td> <td><math>0 &lt; \text{value}</math>.</td> </tr> <tr> <td>4</td> <td>height_length</td> <td>1.0</td> <td><math>0 &lt; \text{value}</math>.</td> </tr> <tr> <td>5</td> <td>left_bottom</td> <td>origin (0.0,0.0,0.0)</td> <td>positon left bottom of rectangle</td> </tr> </tbody> </table> <p><b>[operation]command</b></p> <table border="1"> <thead> <tr> <th>No</th> <th>key</th> <th>default value</th> <th>contents of the value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>input_name</td> <td>no default</td> <td>set name to create mesh</td> </tr> <tr> <td>2</td> <td>mesh_type</td> <td>no default</td> <td>only "quad"</td> </tr> <tr> <td>3</td> <td>u_div / v_div</td> <td>1.0</td> <td>the case specified by distance of base is defined as "base_size=2.0".</td> </tr> <tr> <td>4</td> <td>mesh_name</td> <td>no default</td> <td>name of mesh</td> </tr> </tbody> </table>	No	key	default value	contents of the value	1	name	no default	name of shape	2	geometry_type	no default	"rectangle"	3	side_length	1.0	$0 < \text{value}$ .	4	height_length	1.0	$0 < \text{value}$ .	5	left_bottom	origin (0.0,0.0,0.0)	positon left bottom of rectangle	No	key	default value	contents of the value	1	input_name	no default	set name to create mesh	2	mesh_type	no default	only "quad"	3	u_div / v_div	1.0	the case specified by distance of base is defined as "base_size=2.0".	4	mesh_name	no default	name of mesh
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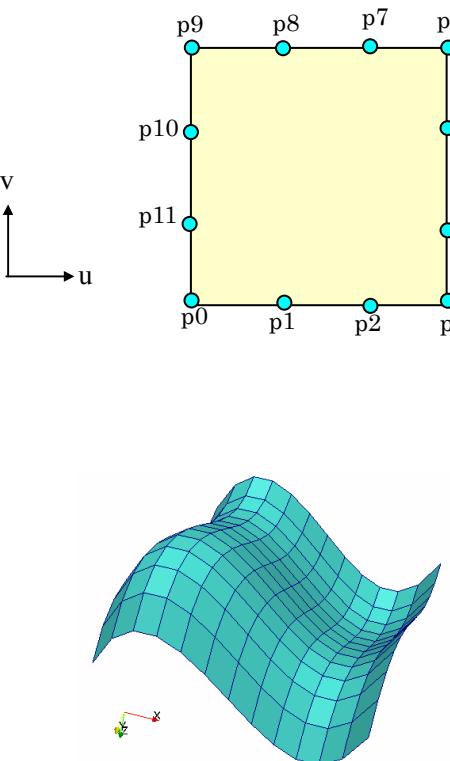
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2	trapezoid		<pre>[face] surface_type= bilinearSurface name=test1 &lt;data&gt; 0.0 0.0 0.0 1.0 0.0 0.0 0.8 0.5 0.0 0.4 0.5 0.0 &lt;/data&gt;  [operation] format = command &lt;data&gt; MESH_CREATE, input_name=test1,mesh_type=quad,u_div=3,v_div=3,mesh_name="AA" MESH_PRINT, input_mesh_name="AA", format=vtu, output_name="out.vtu" &lt;/data&gt;</pre> <table border="1"> <thead> <tr> <th>No</th><th>key</th><th>default value</th><th>contents of the value</th></tr> </thead> <tbody> <tr> <td>1</td><td>surface_type</td><td>no default</td><td>bilinearSurface -</td></tr> <tr> <td>2</td><td>data</td><td>no default</td><td>Trapezoid define 4 corner points.</td></tr> </tbody> </table>	No	key	default value	contents of the value	1	surface_type	no default	bilinearSurface -	2	data	no default	Trapezoid define 4 corner points.
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No	Case study	content	example source																				
3	circle	 <p>The diagram illustrates the process of generating a mesh from a simple geometric shape. At the top, a yellow circle is shown with its center and radius. A green arrow points downwards to two different mesh configurations. The left configuration, labeled 'uniform', shows a circular mesh divided into sectors by radial lines. The right configuration, labeled 'nonuniform', shows a circular mesh divided into five blocks labeled bk0 through bk4. Boundary points between these blocks are highlighted in pink, indicating they do not merge.</p> <p><b>uniform</b> uniform : quadrangle element connected with the center of a circle is degenerated.</p> <p><b>nonuniform</b>: a circle makeup five blocks. currently <b>u_div</b> and <b>v_div</b> must be same value. (boundary points of block do not merge.)</p>	<pre>[shape] geometry_type=circle name=test radius=1 center=0.0 0.0 0.0  [operation] format = command &lt;data&gt; MESH_CREATE, input_name=test_type=quad, u_div=12,v_div=12, mesh_pattern=uniform, mesh_name="AA" MESH_PRINT, input_mesh_name="AA", format=vtu, output_name="out.vtu" &lt;/data&gt;</pre> <table border="1"> <thead> <tr> <th>No</th><th>key</th><th>default value</th><th>contents of the value</th></tr> </thead> <tbody> <tr> <td>1</td><td>geometry_type</td><td>no default</td><td>circle</td></tr> <tr> <td>2</td><td>radius</td><td>1.0</td><td>radius of circle</td></tr> <tr> <td>3</td><td>center</td><td>origin (0.0,0.0,0.0)</td><td>center of circle</td></tr> <tr> <td>4</td><td>mesh_pattern</td><td>uniform</td><td>either the following can be specified. <i>"uniform"</i> or <i>"nonuniform"</i></td></tr> </tbody> </table>	No	key	default value	contents of the value	1	geometry_type	no default	circle	2	radius	1.0	radius of circle	3	center	origin (0.0,0.0,0.0)	center of circle	4	mesh_pattern	uniform	either the following can be specified. <i>"uniform"</i> or <i>"nonuniform"</i>
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4	mesh_pattern	uniform	either the following can be specified. <i>"uniform"</i> or <i>"nonuniform"</i>																				

No	Case study	content	exsample source																				
4	oval	 <p>uniform : quadrangle element connected with the center of a oval is degenerated. nonuniform: currently nonuniform do not use.</p>	<pre>[shape] geometry_type=oval name=test major_axis_radius=2 minor_axis_radius=1 center=2.0,0.0,0.0  [operation] format = command &lt;data&gt; MESH_CREATE, input_name=test, mesh_type=quad, u_div=6,v_div=6, mesh_pattern=uniform, mesh_name="AA" MESH_PRINT, input_mesh_name="AA", format=vtu, output_name="out.vtu" &lt;/data&gt;</pre> <table border="1"> <thead> <tr> <th>No</th><th>key</th><th>default value</th><th>contents of the value</th></tr> </thead> <tbody> <tr> <td>1</td><td>geometry_type</td><td>no default</td><td>oval</td></tr> <tr> <td>2</td><td>major_axis_radius</td><td>1.0</td><td>radius of oval</td></tr> <tr> <td>3</td><td>center</td><td>origin (0.0,0.0,0.0)</td><td>center of oval</td></tr> <tr> <td>4</td><td>mesh_pattern</td><td>uniform</td><td>only "uniform "</td></tr> </tbody> </table>	No	key	default value	contents of the value	1	geometry_type	no default	oval	2	major_axis_radius	1.0	radius of oval	3	center	origin (0.0,0.0,0.0)	center of oval	4	mesh_pattern	uniform	only "uniform "
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No	Case study	content	exsample source												
5	bilinearSurface (Interpolation surface)	 <p>define contrl points</p>  <p>sample of bilinear surface</p>	<pre>[face] surface_type= bilinearSurface name=test &lt;data&gt; 0.0  0.0  0.0 1.0  0.0 -0.4 1.0  1.0  0.4 0.0  1.0 -0.4 &lt;/data&gt;  [operation] format = command &lt;data&gt; MESH_CREATE, input_name=test,mesh_type=quad,u_div=8,v_div=8,mesh_name="AA" MESH_PRINT, input_mesh_name="AA", format=vtu, output_name="out.vtu" &lt;/data&gt;</pre> <table border="1" data-bbox="1078 809 2021 1015"> <thead> <tr> <th>No</th><th>key</th><th>default value</th><th>contents of the value</th></tr> </thead> <tbody> <tr> <td>1</td><td>geometry_type</td><td>no default</td><td>bilinearSurface</td></tr> <tr> <td>2</td><td>data</td><td>no default</td><td>set control point of surface (p0 ~ p3)</td></tr> </tbody> </table>	No	key	default value	contents of the value	1	geometry_type	no default	bilinearSurface	2	data	no default	set control point of surface (p0 ~ p3)
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6	quadricSurface (Interpolation surface)	 <p>sample of quadric surface</p> 	<pre>[face] surface_type=quadricSurface name=test1 &lt;data&gt; 1.0 0.0 0.0 1.0 0.0 -0.5 1.0 0.0 -1.0 0.7 0.7 -1.0 0.0 0.0 -1.0 0.0 0.0 -0.5 0 0 0.0 0.0 0.7 0.7 0.0 &lt;/data&gt;  [operation] format = command &lt;data&gt; MESH_CREATE, input_name=test1,mesh_type=quad,u_div=8,v_div=8,mesh_name="AA" MESH_PRINT, input_mesh_name="AA", format=vtu, output_name="out.vtu" &lt;/data&gt;</pre> <table border="1"> <thead> <tr> <th>No</th><th>key</th><th>default value</th><th>contents of the value</th></tr> </thead> <tbody> <tr> <td>1</td><td>geometry_type</td><td>no default</td><td>quadricSurface</td></tr> <tr> <td>2</td><td>data</td><td>no default</td><td>set control point of surface (p0 ~ p7)</td></tr> </tbody> </table>	No	key	default value	contents of the value	1	geometry_type	no default	quadricSurface	2	data	no default	set control point of surface (p0 ~ p7)
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2	data	no default	set control point of surface (p0 ~ p7)												

No	Case study	content	exsample source
7	cubicSurface (Interpolation surface)	 <p>sample of cubic surface</p>	<pre>[face] surface_type=cubicSurface name=test1 &lt;data&gt; 0.0 0.0 0.0 1.0 0.0 -0.5 2.0 0.0 0.5 3.0 0.0 0.0 3.0 1.0 0.0 3.0 2.0 -0.5 3.0 3.0 0.0 2.0 3.0 0.5 1.0 3.0 -0.5 0.0 3.0 0.0 0.0 2.0 -0.5 0.0 1.0 0.0 &lt;/data&gt;  [operation] format = command &lt;data&gt; MESH_CREATE, input_name=test1,mesh_type=quad,u_div=12,v_div=12,mesh_name="AA" MESH_PRINT, input_mesh_name="AA", format=vtu, output_name="out.vtu" &lt;/data&gt;</pre>