

**3D AutoCAD 2011: One Step at a Time**  
**Lesson 3: Wireframes and Surface Modeling**

**11R3-3D**

**Review Questions**

Please write your answers on a separate sheet of paper.

1. A \_\_\_\_\_ model is a skeleton drawing (a stick figure).
2. A \_\_\_\_\_ model stretches some skin over the skeleton.
3. Use the (pline, 3dpoly) command to draw a polyline with different z-coordinates.
4. (T or F) A 3DPoly has no width property.
5. Use the \_\_\_\_\_ command to create a curved line in Z-Space.
6. Use the \_\_\_\_\_ technique to identify points by intersecting lines in Z-Space.
7. When you cannot see points on a drawing, reset the \_\_\_\_\_ system variable.

Name the three types of surfaces used in Surface Modeling discussed in Section 3.4.

8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. Which of the above allows for removal of part of the surface?
12. Which converts an existing object into a region?
13. Which can be drawn without concern for the current UCS?

You can use the (14) option of the 3DFace command to hide some edges, or you can wait and use the (15) palette to remove them after the 3DFace has been drawn.

14. \_\_\_\_\_
15. \_\_\_\_\_
16. (T or F) A wireframe Model is required when drawing a Surface Model (over which you will stretch the "skin").
17. To keep invisible edges of a 3DFace visible, set the \_\_\_\_\_ system variable to 1.
18. A \_\_\_\_\_ is a filled, 2-dimensional polygon.

In surfaces, a (19) can be created from scratch, but a (20) requires an existing, closed object.

19. \_\_\_\_\_
20. \_\_\_\_\_
21. The term \_\_\_\_\_ refers to a family of solid objects including spheres, cones, and boxes.
22. Use a (Region, 3DFace) anywhere an arc, circle, or hole is required.
23. A (Region, 3DFace) can be drawn in 3-dimensions.
24. There are no edge concerns when drawing a (region, 3DFace).
25. The \_\_\_\_\_ command uses boundaries to create a region.

26. For the Boundary command to work properly, the objects forming the boundary must be on the \_\_\_\_\_ of the Z-Axis in the current UCS.
27. To create a Region using the Boundary command, the Object type (in the Boundary Creation dialog box) must be set to \_\_\_\_\_.

List the three modifying tools we discussed which are shared between Regions and 3DSolids.

28. \_\_\_\_\_ 30.

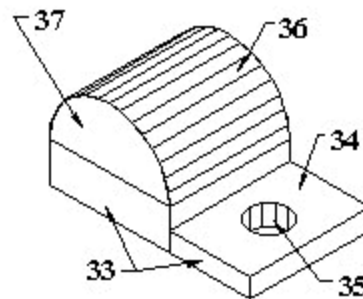
29.

31. Restrictions to the 3D polyline are:

- a) doesn't have width,
- b) you can use only a continuous linetype,
- c) 3DPoly can be Splined using Pedit,
- d) all of the above.

32. (T or F) Nodes placed by the Divide command are always visible.

Refer to the figure at right. For numbers 33 through 37, identify what type of surface you would use and explain why.



38. (T or F) A Spline cannot be used to connect the intersection of the two roofs in Exercise 3.2A, p.63, because a spline's smooth curves are not compatible with the 3DFace command.
39. (T or F) In order to place holes in a surface, the surface must be a 3DFace.
40. (T or F) The user is required to adjust the UCS in order to add a 3DFace to a model.
41. (T or F) Point filters are not required to add a 3DFace to a model.
42. (T or F) It is not necessary to have a Wireframe Model prior to creating a 3D Surface Model.
43. (T or F) It is easier to make 3DFace edges invisible as the user draws the object.
44. The difference between a solid and a region is:
  - a) a solid is a filled 2-dimensional polygon, while a Region is an actual surface,
  - b) the user can create a solid from scratch but a region is created from an existing object,
  - c) both of the above.

45. An \_\_\_\_\_ setting of 0 (the default) means that AutoCAD will use the Z-value of a selected point.

List the six 3DOSNAPs.

46.

49.

47.

50.

48.

51.

**Answers:**

- |                     |                     |  |
|---------------------|---------------------|--|
| 1. Wireframe        | 17. SPLFrame        | 33. to 37. [Refer to Sect. 3.4.4 – p.76] |
| 2. Surface or mesh  | 18. Solid           | 38. T                                    |
| 3. 3dpoly           | 19. Solid           | 39. F                                    |
| 4. T                | 20. Region          | 40. F                                    |
| 5. Spline           | 21. 3DSolid         | 41. T                                    |
| 6. Point Projection | 22. Region          | 42. T                                    |
| 7. PDMode           | 23. 3DFace          | 43. F                                    |
| 8. Regions          | 24. Region          | 44. c                                    |
| 9. Solids           | 25. Boundary        | 45. OSNAPZ                               |
| 10. 3DFaces         | 26. Zero coordinate | 46. Vertex                               |
| 11. Region          | 27. Region          | 47. Midpoint on edge                     |
| 12. Region          | 28. Subtract        | 48. Center of face                       |
| 13. 3DFace          | 29. Union           | 49. Knot                                 |
| 14. Invisible       | 30. Intersect       | 50. Perpendicular                        |
| 15. Properties      | 31. a & b           | 51. Nearest to face                      |
| 16. F               | 32. F               |  |