

Last Name:	
First Name:	
Class:	
Grade:	Converted to Final Grade:

Intermediate Engineering Graphics
Instructor: Edward N. Locke

Quiz 6A: Descriptive Geometry (Solids and Development)

(1) Look at the object in the instructor's hands and circle all correct statements:

1. The first object is a polyhedron and has a ruled surface.
2. The second object is a cylinder and has a warped surface.
3. The third object is a sphere and has a double-curved surface.
4. The fourth object is a cone and has a single-curved surface.

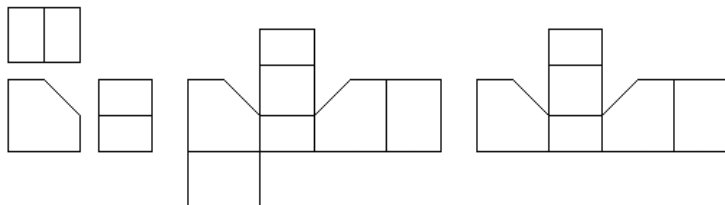
(2) Circle all correct statements on development:

1. Cones, cylinders and spheres can all be precisely developed.
2. Cones, cylinders, and polyhedra can be precisely developed; and sphere and warped surfaces can be developed only approximately by an indirect method of substitution.
3. All single-curved surfaces can be precisely developed.
4. Triangulation divides a surface into a number of triangles to make a development for transition pieces and is extensively used in ventilating and air-conditioning constructions.

(3) Circle all correct statements on Platonic Solids:

1. The Platonic Solids include tetrahedron, dodecahedron, ellipsoid, cube, and icosahedron.
2. The Platonic Solids include tetrahedron, sphere, octohedron, cube, and torus.
3. The Platonic Solids include tetrahedron, dodecahedron, octohedron, cube, and icosahedron.
4. The Platonic Solids include tetrahedron, dodecahedron, octohedron, pentagonal, and icosahedron.

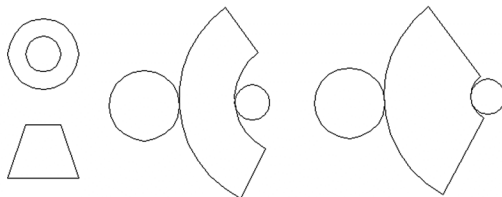
(4) Circle the correct development of the following object.



Development A

Development B

(5) Circle the correct development of the following cylinder.



Development A

Development B

Quiz 6B: Descriptive Geometry (Plane, Point, Line, Angle, & Tangencies)

(1) Look at the lines in the instructor's hands and circle all correct statements:

1. The first set of lines are perpendicular and intersecting lines.
2. The second set of lines are parallel lines.
3. The third set of lines are parallel lines.
4. The fourth set of lines are skew lines.

(2) Look at the lines in the instructor's hands and circle all correct statements:

1. The first line is parallel to the direction of sight from your eyes, and appears as a point.
2. The second line is parallel to the direction of sight from your eyes, and appears as a true-length line.
3. The third line is perpendicular to the direction of sight from your eyes, and appears as a line.
4. The fourth line is neither parallel nor perpendicular to the direction of sight from your eyes, and appears as a foreshortened line.

(3A) Circle all correct statements on line segments:

1. Three points are needed to establish a line segment.
2. Two points are needed to establish a line segment.
3. Line 1-2 and line 2-3 with points 1 (2.5,3,0), 2 (4,5.5,3), and 3 (6,8,5) are intersecting lines.
4. Line 1-2 and line 3-4 with points 1 (2,2,3), 2 (4,2,3), 3 (2,2,5), and 4 (4,2,7) are parallel lines.

(3B) Circle all correct statements on line segments:

1. Line 1-2 and line 2-3 with points 1 (2,3,0), 2 (4, 5,0), and 3 (6,8,0) are intersecting lines.
2. Line 1-2 and line 3-4 with points 1 (2,3,0), 2 (4,3,0), 3 (3,6,0), and 4 (4,6,0) are parallel lines.
3. Line 1-2 and line 3-4 with points 1 (2,3,0), 2 (4,3,0), 3 (3,6,4), and 4 (4,6,0) are skew lines.
4. Line 1-2 and line 3-4 with points 1 (2,3,0), 2 (4,3,0), 3 (3,6,4), and 4 (4,6,0) are parallel lines.

(4) Play the Pencil-Cardboard Game and circle all correct statements on lines and planes:

1. Two straight lines in the same plane must intersect unless the lines are parallel.
2. Two straight lines in the same plane must be parallel unless the lines intersect.
3. If a straight line does not intersect a plane, it must be parallel to the plane.
4. The intersection of two planes is a straight line with all points common to two planes.

(5) Play the Pencil-Cardboard Game and circle all correct statements on parallelism:

1. Parallel lines in space always appear as parallel lines, or as points when they are perpendicular to the viewing plane, or coincide as a single line when they are parallel to the viewing plane and located one behind the other.
2. If a pair of intersecting lines in one plane is parallel to a pair of intersecting lines in a second plane, then the planes are parallel.
3. Plane A is not parallel to Line A if it does not contain a line that is parallel to Line A.
4. A line is parallel to a plane if it is parallel to a line contained by the plane.

(6) Play the Pencil-Cardboard Game and circle all correct statements on perpendicularity:

1. If Line A is perpendicular to a Plane A, any plane containing Line A is perpendicular to Plane A.
2. The shortest distance between Line A and Line B is measured along a line perpendicular to either Line A or Line B.
3. If Line A appears as a foreshortened line in side view, Line B is perpendicular to Line A, then Line B will not appear as a true-length line in side view.
4. If Line A appears as a point in side view, Line B is perpendicular to Line A, then Line B will appear as a true-length line in side view.

(7) Plane A contains only one straight line that is shared by the surface of Cylinder A, Plane A is

1. parallel to elements in the surface of Cylinder A.
2. parallel to the base of Cylinder A.
3. tangent to Cylinder A.
4. perpendicular to the axis of Cylinder A.

(8) Circle all correct statements regarding Cone A and Cone B:

1. Cone A is right-circular ($h=.5''$, $r=.25''$), Cone B is right-circular ($h=.5''$, $r=.25''$) also, then if Cone A and Cone B intersect, their common element will form the same angles with their base planes.
2. Cone A is right-circular ($h=.25''$, $r=.25''$), Cone B is right-circular ($h=.5''$, $r=.25''$), then if Cone A and Cone B intersect, their common element will form the same angles with their base planes.
3. Cone A is right-circular ($h=.5''$, $r=.25''$), Cone B is right-circular ($h=.5''$, $r=.5''$) also, then if Cone A and Cone B intersect, their common element will form the same angles with their base planes.
4. Cone A is right-circular ($h=.5''$, $r=.25''$), Cone B is right-circular ($h=.5''$, $r=.75''$), then if Cone A and Cone B intersect, their common element will not form the same angles with their base planes.

(9) Circle all correct statements regarding a sphere:

1. The surface of a sphere is a curved surface that contains curved line elements and unlimited number of points equidistant from the center of the sphere.
2. A plane tangent to a sphere contains one and only one curved line in the surface of a sphere.
3. The surface of a sphere is double-curved and contains infinite number of points equidistant from the center of the sphere but no straight-line elements.
4. A plane tangent to a sphere contains only one point in that surface.