

King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
MATH 201, Sections 8 and 11(041)
Quiz -2

Time: 15 Minutes

Marks: 9

Instructor : Dr. Abdul Rahim Khan

Version (a)

- (i) Find equation of a plane that contains the point(5,0,2) and the line

$$x = 1 + 3t, \quad y = 4 - 2t, \quad z = -3 + t$$

- (ii) Identify and sketch the surface
- $x^2 + 2z^2 - 6x - y + 10 = 0$

Version (b)

- (i) Is the plane
- $6x - 2y + 4z = -4$
- parallel or perpendicular to line

$$x = 3t, y = 1 - t, z = -1 + 2t?$$

- (ii) Describe the surface
- $4x^2 + 4y^2 + z^2 + 8y - 4z = -4$
- . Draw its rough sketch.

Version (c)

- (i) Find equation of a sphere with center (-1,2,1) that is tangent to the plane
- $2x + 5y + 16z = 13$
- .

- (ii) Use traces to sketch the graph of the surface
- $16x^2 - 9y^2 + 36z^2 = 144$
- .

Version (d)

- (i) Find equation of a plane that contains the line
- $x = 1 + 3t, y = 3 + 2t, z = 4t$
- and is parallel to the intersection of planes
- $2x - y + z = 0$
- and
- $y + z + 1 = 0$

- (ii) If the graph of
- $z = 4 - y^2$
- is rotated about the
- y
- axis, then find equation of the resulting surface.