

Calculus II

Assignment 1

20180613

1. (a) What does the equation $x = 4$ represent in \mathbb{R}^2 ? What does it represent in \mathbb{R}^3 ? Illustrate with sketches.
(b) What does the pair of equations $y = 3, z = 5$ represent? In other words, describe the set of points (x, y, z) such that $y = 3$ and $z = 5$. Illustrate with a sketch.
2. Find a vector that has the same direction as vector $\langle -2, 4, 2 \rangle$ but has length 6.
3. Find an equation of the plane.
The plane through the point $(5, 3, 5)$ and with normal vector $2\mathbf{i} + \mathbf{j} - \mathbf{k}$
Hint : dot product.
4. Describe the motion of a particle with position as (x, y) varies in the given interval.
 $x = 3 + 2 \cos t, y = 1 + 2 \sin t, \pi/2 \leq t \leq 3\pi/2$
Hint : treat t as angle θ

References : Calculus, 7th Edition, James Stewart