1. **Lines in 2-D.**

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| --- | --- |
| **Cartesian Equation** |  |
| **Parametric Equation** |  |
| **Vector Equation** |  |

Example 1) Given the graph, Write an equation of the line

1. In Cartesian form
2. Parametric form
3. Vector form.

Example 2) Given 

1. Write an equation in the form of .
2. Write an equation in a parametric form.
3. Write an equation in vector form.

Example 3) A line is passing through (-2, 5) and (1, 3).

1. Write an equation in the form of .
2. Write an equation in a parametric form.
3. Write an equation in vector form.
4. **Lines in 3-D.**

|  |  |
| --- | --- |
| **Cartesian Equation** |  |
| **Parametric Equation** |  |
| **Vector Equation** |  |

Example 1) Given the line is passing through (2, -1, 4) and (-1, 0, 2).

1. Write an equation in parametric form.
2. Write an equation in vector form.
3. Write an equation in Cartesian form.

Example 2) Given the line is passing through (4, 2, 5) with directional vector ****

1. Write an equation in parametric form.
2. Write an equation in vector form.
3. Write an equation in Cartesian form.

Example 3 ) Given the line ****

1. Write an equation in parametric form.
2. Write an equation in vector form.

Example 1) Find the equation of the plane containing A(1, 5, -2), B(-7, 12, 3), & C(4, -8, 9) in

a. Vector Form

b. Cartesian Form

Example 2) State the normal vector to the plane with equation 5x – 12y – 42z = 17.

Example 3) Write the equation of a plane  into a Cartesian form.

Example 4) Find an equation for the plane with normal vector  contains the point (7, -2, 1)