At A = 1

Visually both functions are identical in 2-D space they are visualized as unit circle.

But as it is clear one work with one extra variable Y.

A screenshot of a math problem

Description automatically generated

A red circle with green dots and numbers on a grid

Description automatically generated

A math equation with black text

Description automatically generated

A blue circle on a graph paper

Description automatically generated

And because of dimensionality differences we can not visualize in 3-D

But we can visualize in 3-D because the existence of Y variable.

A black text on a white background

Description automatically generated

A graph of a cylinder

Description automatically generated

In 3-D if we use A = ¼ therefore the visualization will be circle with radius = 0.5.

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Description automatically generated

A graph of a line

Description automatically generated

Second this function f (X, Y) can be written in the form of

*Both will be circle with radius = Also 2 can be written as*

*Therefore, we can write f (X, Y) at as if A =*

*Therefore, if we multiply both sides in this equation by 0.5.*

*This equation in 2-D will be visualized as unit circle.*

*A graphing circle with a circle in the middle

Description automatically generatedA math equation with numbers and symbols

Description automatically generated*

*Therefore, the mapping between both dimensions 2-D and 3-D*

|  |  |  |  |
| --- | --- | --- | --- |
| *A* | *G(X)* | *F (X, Y)* | *Circle* |
| *At A = 1/4*  *Unit Circle with radius = 1/2* | *Unit Circle with radius = 1/2* |  |  |
| *At A = 1/2*  *Unit Circle with radius =* | *Unit Circle with radius =* |  |  |
| *At A = 1*  *Unit Circle with radius = 1* | *Unit Circle with*  *Radius = 1* |  |  |
| *At*  *Unit Circle with*  *Radius = 2* | *Unit Circle with*  *Radius = 2* |  |  |

*And this is equivalent to multiply by 2 so when analytical continuity done its affect is the same as multiply by 0.5 which. Removed the effect of these 2 again and mapped everything back to the unit circle.*

|  |  |  |  |
| --- | --- | --- | --- |
| *At*  *Unit Circle with*  *Radius = 2*  *A math equations and numbers  Description automatically generated* | *Unit Circle with*  *Radius = 1*    *If we multiply by 0.5 as L = 0.5 we can replace 0.5 by its value in terms of {e and ln ()} function in G(X) therefore we go back to G(X)* |  |  |

*If we multiply by 0.5 as L = 0.5 we can replace 0.5 by its value in terms of {e and ln ()} function in G(X) therefore we go back to G(X)*

|  |  |  |  |
| --- | --- | --- | --- |
| *At*  *Unit Circle with*  *Radius = 1* | *Unit Circle with*  *Radius = 1* |  |  |
| *At*  *Unit Circle with*  *Radius = 1/2* | *Unit Circle with*  *Radius = 1/2*  *A math equation with numbers and symbols  Description automatically generated* |  |  |

*As both domains one is the square root of the other in the square root domain with respect to the f (X, Y) domain as f (X, Y) domain works on higher dimension than G(X)*

*Therefore, multiply by 0.5 in G(X) domain will be equal to multiply by ¼ in f (X, Y) domain.*