1. Please convert the following Homogeneous coordinates to Rectangular coordinates, and determine which ones belong to the same image coordinate.

Hint: Cartesian coordinates, also called rectangular coordinates, provide a method of rendering graphs and indicating the positions of points on a two-dimensional (2D) surface or in three-dimensional (3D) space.

|  |  |
| --- | --- |
| Homogeneous coordinates | Rectangular coordinates |
| (3,2,1) |  |
| (6,4,2) |  |
| (15a,10a,5a) ( a |  |
| (16,8,4) |  |

Solution

1. Suppose that is an affine transformation, where the matrix that represents *f* in homogeneous coordinates. Please compute *f*(6, −8).

Solution

1. Please write the pseudocode of the inverse warping given the inverse matrix of T: T-1.

Here is the pseudocode of forward warping:

Forward (I, I’, T)

{

for (y=0; y<I. height; y++)

{

for (x=0; x<I. width; x++)

{

(x’, y’) = T(x,y);

I’(x’, y’) = I(x, y);

}

}

}

Solution