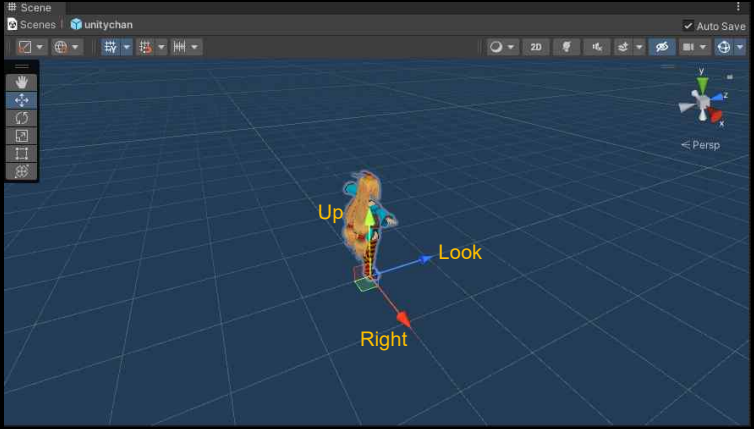
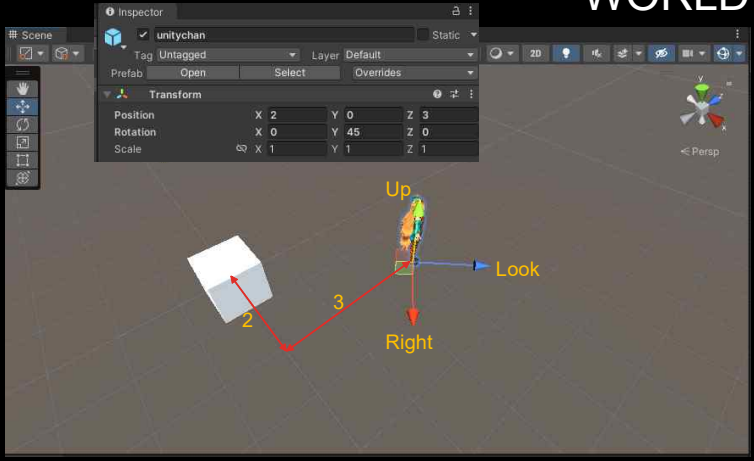
VIEW 변환 행렬

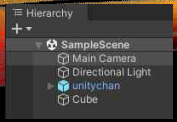
LOCAL SPACE

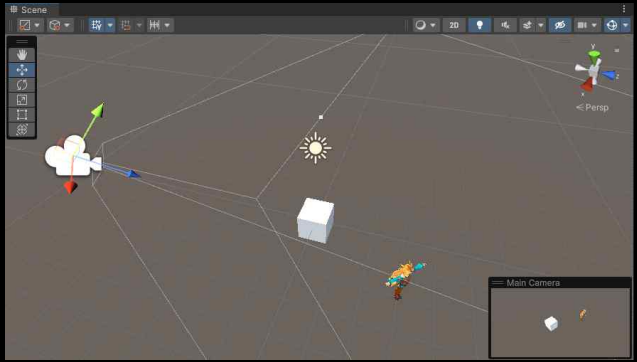


WORLD SPACE

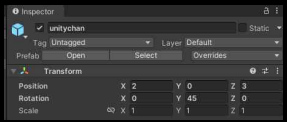

Inspector
unitychan
Static
Tag Untagged
Layer Default
Prefab Open Select Overrides
Transform
Position X 2 Y 0 Z 3
Rotation X 0 Y 45 Z 0
Scale X 1 Y 1 Z 1
Scene
2D
Persp
Up
Look
Right
2
3

VIEW (CAMERA, EYE) SPACE

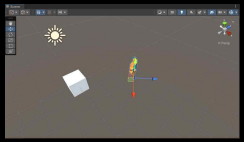


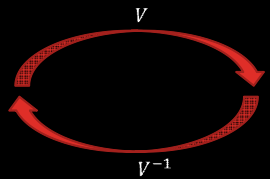


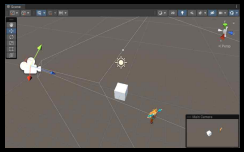
VIEW MATRIX

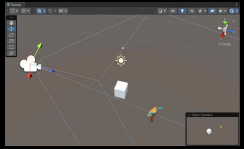

Inspector
unitychan
Static
Tag Untagged
Layer Default
Prefab Open Select Overrides
Transform
Position X 2 Y 0 Z 3
Rotation X 0 Y 45 Z 0
Scale X 1 Y 1 Z 1


Inspector
Main Camera
Static
Tag MainCamera
Layer Default
Transform
Position X 2 Y 2 Z 0
Rotation X 45 Y -45 Z 0
Scale X 1 Y 1 Z 1

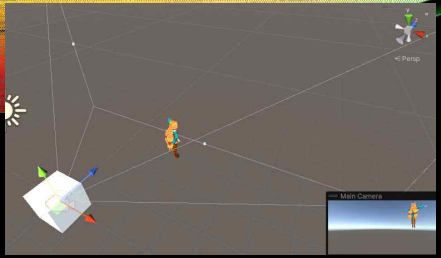


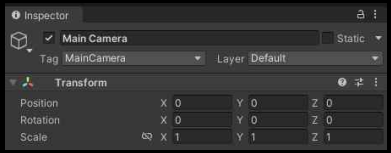

V
V^{-1}

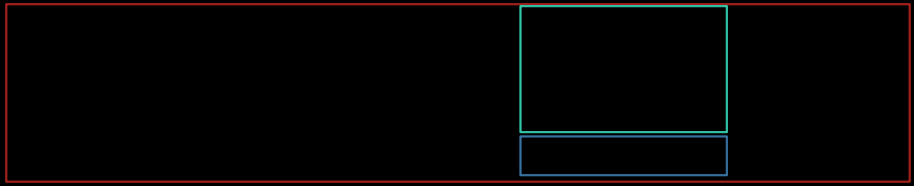




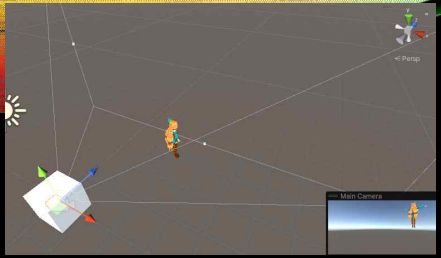
(B 좌표계 기준) A의 좌표

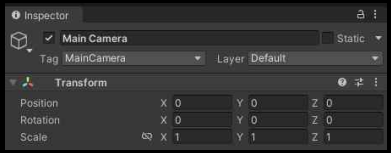

Persp
Main Camera


Inspector
Main Camera
Static
Tag MainCamera
Layer Default
Transform
Position X 0 Y 0 Z 0
Rotation X 0 Y 0 Z 0
Scale X 1 Y 1 Z 1



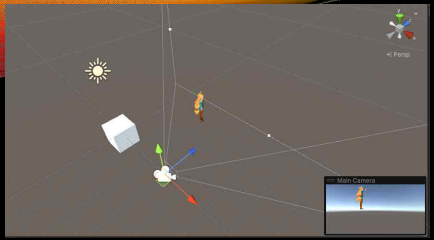
(B 좌표계 기준) A의 좌표

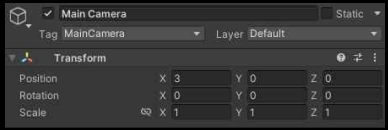


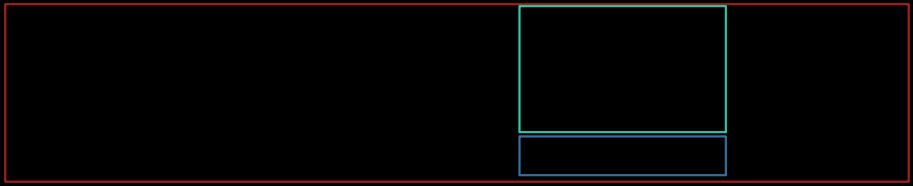


$$M = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

(B 좌표계 기준) A의 좌표

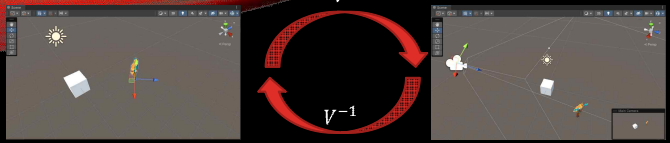

Persp
Main Camera


Main Camera
Static
Tag MainCamera
Layer Default
Transform
Position X 3 Y 0 Z 0
Rotation X 0 Y 0 Z 0
Scale X 1 Y 1 Z 1



(B 좌표계 기준) A의 좌표

VIEW MATRIX



$$V = {W_{cam}}^{-1} = (RT)^{-1} = T^{-1} \cdot R^{-1} = T^{-1} \cdot R^{T}$$

$$= \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -C_x & -C_y & -C_z & 1 \end{bmatrix} \begin{bmatrix} Right_x & Up_x & Look_x & 0 \\ Right_y & Up_y & Look_y & 0 \\ Right_z & Up_z & Look_z & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$= \begin{bmatrix} Right_x & Up_x & Look_x & 0 \\ Right_y & Up_y & Look_y & 0 \\ Right_z & Up_z & Look_z & 0 \\ -\vec{C} \cdot \overrightarrow{Right} & -\vec{C} \cdot \overrightarrow{Up} & -\vec{C} \cdot \overrightarrow{Look} & 1 \end{bmatrix}$$

C++

```
XMMATRIX XM_CALLCONV XMMatrixLookAtLH(
  FXMVECTOR EyePosition,
  FXMVECTOR FocusPosition,
  FXMVECTOR UpDirection
);
```

Parameters

`EyePosition`

Position of the camera.

`FocusPosition`

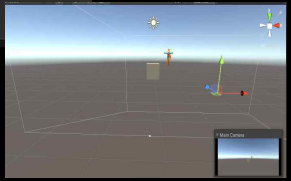
Position of the focal point.

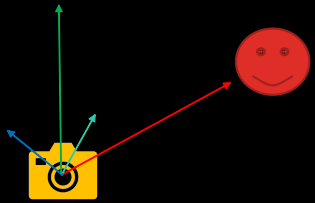
`UpDirection`

Up direction of the camera, typically < 0.0f, 1.0f, 0.0f >.

Return value

Returns a view matrix that transforms a point from world space into view space.





$$\begin{bmatrix} Right_x & Up_x & Look_x & 0 \\ Right_y & Up_y & Look_y & 0 \\ Right_z & Up_z & Look_z & 0 \\ -\vec{C} \cdot \overrightarrow{Right} & -\vec{C} \cdot \overrightarrow{Up} & -\vec{C} \cdot \overrightarrow{Look} & 1 \end{bmatrix}$$