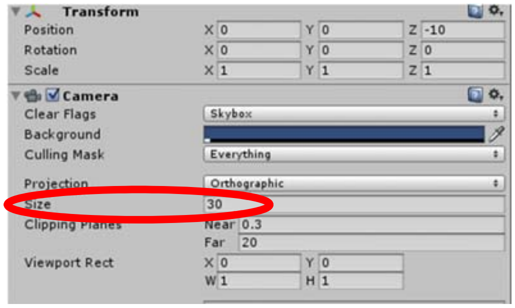
CSS385: Assignment 4 Question Sheet:

Instructions:

- In questions where you are asked to explain, please be concise.
- Show your work when necessary, be neat, precise, and brief!
- To help us grade your assignments and return this to you in a timely fashion please:
  - Put your name and answers in the answer sheet only (separate link provided). Anything you write outside of the answer sheet **will not** be graded.
  - Provide your answers in the order of the problems.
  - Please use only one side of 8.5x11 paper.
  - Please make sure you bring a hardcopy print out **of the answer sheet (!!only!!)** to submit at the beginning of class. Please do not print out the problems.

Your assignment may not be graded if any of the above is violated, you have been warned.

1. I have created a 2D unity project and here is the setting on my MainCamera:



Transform

Position	X 0	Y 0	Z -10
Rotation	X 0	Y 0	Z 0
Scale	X 1	Y 1	Z 1

Camera

Clear Flags	Skybox
Background	
Culling Mask	Everything
Projection	Orthographic
Size	30
Clipping Planes	Near 0.3 Far 20
Viewport Rect	X 0 Y 0 W 1 H 1

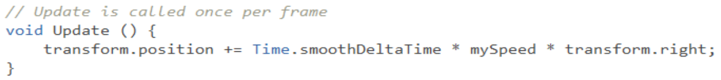
My game window size is 800-pixel wide by 600-pixels in height.

a. (**1pt**) What is the total height (from bottom of the window to the top) of the game world that is visible through the game window?
30x2 = 60

b. (**1pt**) What is the total width (from left of the window to the right) of the game world that is visible through the game window?
800/600 = X/60 ➔ X = 80

c. (**2pt**) What is the coordinate of the lower-left corner of the game window? No! I am not talking about pixel value rather I am talking about the coordinate you must set to put an object at the lower-left corner of the game window.
Camera at the center of the world, so, (-40, -30)

d. (**2pt**) There is an object located at the left-boundary of the game window and I update the position of this object with:

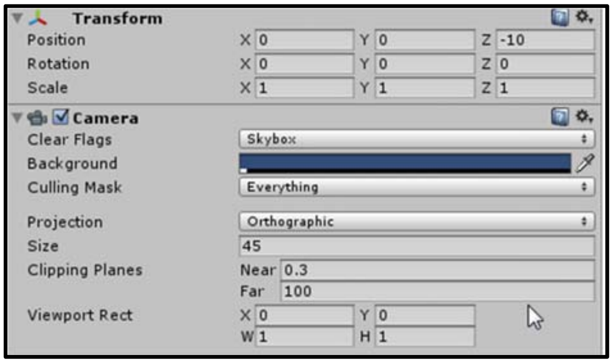


```
// Update is called once per frame
void Update () {
    transform.position += Time.smoothDeltaTime * mySpeed * transform.right;
}
```

What should the value of ***mySpeed*** be if I want my object to move to the right-boundary of the game window in about 10 seconds?

What to cover 80 units in 10 seconds, speed = Distance/time = 80/10 = 8

2. I created a new project with a new camera:



Transform

Position X 0 Y 0 Z -10

Rotation X 0 Y 0 Z 0

Scale X 1 Y 1 Z 1

☑ Camera

Clear Flags: Skybox

Background: 🟦

Culling Mask: Everything

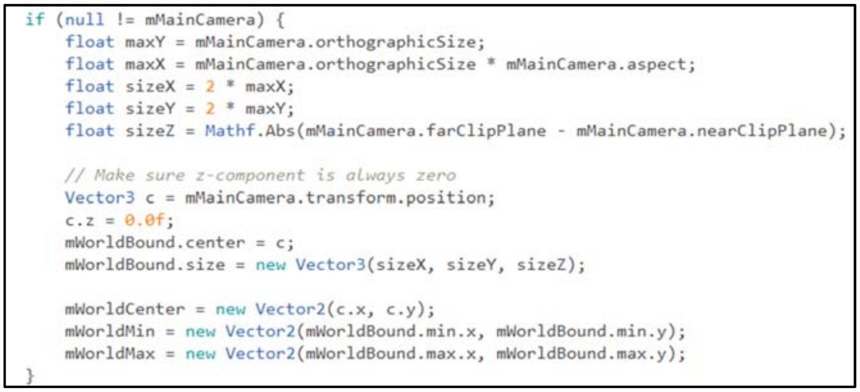
Projection: Orthographic

Size: 45

Clipping Planes: Near 0.3, Far 100

Viewport Rect: X 0 Y 0, W 1 H 1

Here is the script that is attached to my global game manager:



```
if (null != mMainCamera) {
    float maxY = mMainCamera.orthographicSize;
    float maxX = mMainCamera.orthographicSize * mMainCamera.aspect;
    float sizeX = 2 * maxX;
    float sizeY = 2 * maxY;
    float sizeZ = Mathf.Abs(mMainCamera.farClipPlane - mMainCamera.nearClipPlane);

    // Make sure z-component is always zero
    Vector3 c = mMainCamera.transform.position;
    c.z = 0.0f;
    mWorldBound.center = c;
    mWorldBound.size = new Vector3(sizeX, sizeY, sizeZ);

    mWorldCenter = new Vector2(c.x, c.y);
    mWorldMin = new Vector2(mWorldBound.min.x, mWorldBound.min.y);
    mWorldMax = new Vector2(mWorldBound.max.x, mWorldBound.max.y);
}
```

Assuming ***mMainCamera*** is a reference to the ***MainCamera***. For the following questions, your answers should be exact numeric values, or insufficient information to compute.

a. (**2pt**) What are the values for mWorldBound.size.X, Y?

mWorldBound.size.X=**insufficient info**! Since we don't know the game window size

mWorldBound.size.Y=90 as defined by the camera.

b. (**2pt**) What are the values for mWorldCenter.X, Y?

(0, 0) ← this is the camera position

3. (**5pt**) Here are some sample programming code we have used in GTCS1Lib

- **Code-A:** `World.SetWorldCoordinate(new Vector2(0, 0), kWorldWidth);`
- **Code-B:** `mHero = new XNACS1Rectangle(new Vector2, Width, Height, "Text");`
- **Code-C:** `mHero.RemoveFromAutoDrawSet();`
- **Code-D:** `mHero.Collided(mEnemy);`
- **Code-E:** `XNACS1Base.World.ClampAtWorldBound(mEnemy);`
- **Code-F:** calling of `XNACS1Base.UpdateWorld()`

For the following actions we can perform in Unity, which of the above GTCS1Lib programming code line is achieving the corresponding functionality. You should answer **None** if none of the above provided code achieves the corresponding Unity action.
For example,

- Destroy(GameObject): is most similar to **Code-C**; while
- Add a RigidBody component to a GameObject: has **None** correspondence

What about for the following actions:

a. Drag a texture from file system into the **Assets** window of my Unity project.
None. This is equivalent to dragging a texture into the VS IDE.

b. Drag a texture from file system into the **Scene** window of my Unity project.
Code-B. Here we create a user interact-able game object.

c. Set the position, and size of my Main Camera.
Code-A: defines what we can see and visible world dimension

d. Drag a pre-defined script onto an existing GameObject.
None. This is kind of similar to defining a subclass of Primitive

e. Implement the **OnTriggerEnter2D**() function.
None. This is ***not* Code-D** (testing for a condition), this is the code you would implement after testing for Code-D.