Midterm Exam Review Written Portion	**Name:** SOLUTIONS	
	Date:	**Period:**

Read directions carefully.

Use the screenshot at the right to complete the questions on this page.

1. Which of the following are <u>not</u> Vector3 objects? (choose all that apply)
   - ☐ Position
   - ☑ TimeMultiplier
   - ☑ Rotation
   - ☑ Radius
   - ☐ Scale
   - ☑ HourHand
   - ☑ Prefab

2. Name one variable that could be of type *float*:

   Radius, TimeMultiplier

3. How many scripts are attached to the Clock?
   - ○ 0
   - ○ 1
   - ⊘ 2
   - ○ 3
   - ○ 4

4. Which variable will most likely cause an exception or error?

   HourHand

5. Which of these best describes the clock based on the screenshot?
   - ○ The clock is longer than normal
   - ○ The clock is upside down
   - ○ The clock is centered at the origin
   - ⊘ The clock is taller than normal

6. Which of these must be a public variable?
   - ○ HourHand
   - ○ TimeMultiplier
   - ○ Radius
   - ○ Prefab
   - ⊘ All of the above
   - ○ None of the above

7. Which of these are NOT member functions of a MonoBehaviour script?
   - ☐ Start()
   - ☐ Update()
   - ☑ Repeat()
   - ☑ FixedUpdate()

8. Fill in the blank so the code can compile.

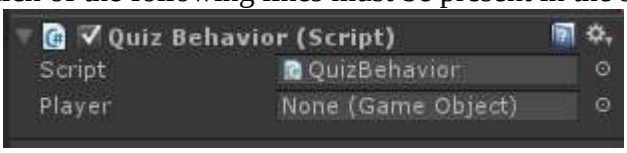
```
int counter = 0;

_____counter_____ = counter + 1;
```

9. What is the position of the current object after this code runs?

```
Vector3 current_location = new Vector3(10, -3, 5);
Vector3 thrust = new Vector3(1, 0, 1);
this.transform.position = current_location + thrust;
```

(__11__ , __-3__ , __6__)

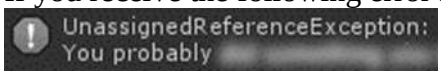
10. Which of the following lines must be present in the script QuizBehavior based on this screenshot?



   - ○ private int Player
   - ⊘ public GameObject Player;
   - ○ private GameObject Player;
   - ○ public int Player;

11. Which axis represents Up and Down in the Unity scene?
   - ○ X
   - ⊘ Y
   - ○ Z

12. If you receive the following error in the Unity editor, what is the most likely cause?



   - ○ You have a private variable that should be changed to public
   - ⊘ You didn't drag-and-drop an object into a public script variable
   - ○ You didn't add an object into your scene
   - ○ An object in your scene doesn't have a name

13. A class name should start with a(n):
   - ○ Number
   - ○ Lower-case letter
   - ⊘ Upper-case letter
   - ○ Underscore

14. In order to see a variable in the Unity Editor, you will need to make it ___public___.

15. Methods in a class will be ___public___ (public/private/static/protected) unless specified.

16. Use the _____ keyword to allocate memory for an instance of a created object
    - ❍ mem
    - ❍ alloc
    - ⊘ new
    - ❍ instantiate

17. List two pairs of symbols that are always used in pairs in a C# script. '' , "" , ( ) , [ ] or { }

18. The __Start__( ) method in a Unity script will run only once.

19. Write a compilable line of C# code to move the parent GameObject to the origin (0, 0, 0).

    this.tranform.position = new Vector3(0, 0, 0);

20. What is the exact output of the following code?

```
int a = 2;
int b = 3;
float c = a / b;
Console.WriteLine("result: " + c.ToString());
```

Fill in as many boxes as needed:

r	e	s	u	l	t	:		0											

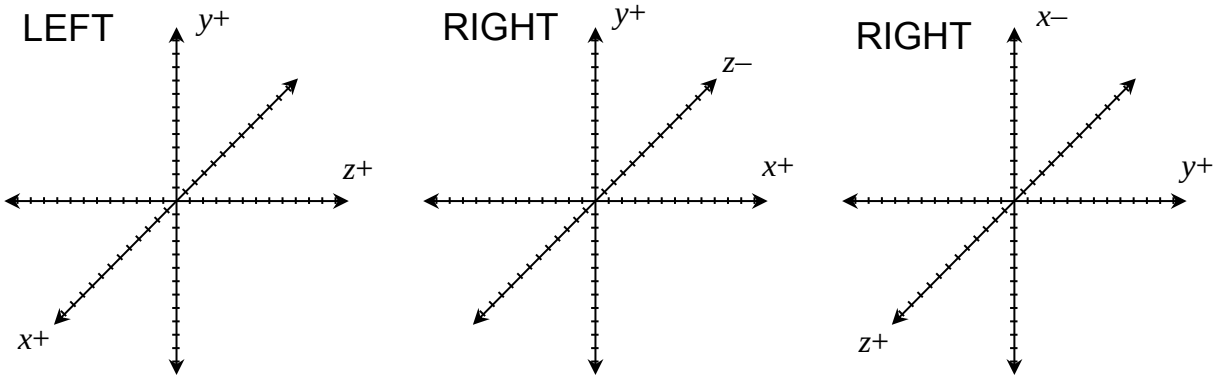
21. What is the exact output of the following code?

```
for(int i = 1; i <= 5; i++) {
     Console.Write(i);
}
```

Fill in as many boxes as needed:

1	2	3	4	5	

22. Identify whether each coordinate system is left- or right-handed.



23. Which of the following lines of code are automatically included in a new MonoBehavior script? (choose all that apply)

- ☑ `using UnityEngine;`
- ☐ `void Run() {`
- ☑ `void Start () {`
- ☑ `void Update () {`
- ☐ `float x = 0;`
- ☐ `public GameObject player;`

24. Display the following numbers in the Unity console: 5, 10, 15, 20, … , 95, 100

```
for(int i = 5 ; i <= 100 ; i = i + 5 )
{
    Debug . Log ( i . ToString () );
}
```

25. How many lines of text will be displayed? 3 // when i is 3, 5, and 7

```
for(int i = 3; i < 9; i = i + 2) {
     Debug.Log("The line above is a lie.");
}
```

26. Give an example of a number that could not be stored in either a float or int variable type.
Example: 1.0x10^100 (pi or e would also be accepted)

27. The boolean variable type can only store two possible values.

28. Give an example of a class name written using Camel-Casing: Example: MySingingMonster

29. Mark all that apply to a Rigidbody:

- ☐ Always reacts to gravity
- ☑ Can be forced to stay in one position
- ☑ Has a mass
- ☐ Is always a kinetic object
- ☑ Can mimic the effects of air resistance or friction
- ☑ Must be present for a Spring Joint to function

30. Which joint type is most similar to gluing two things together?

- ❍ Axle
- ⊘ Fixed
- ❍ Hinge
- ❍ Spring

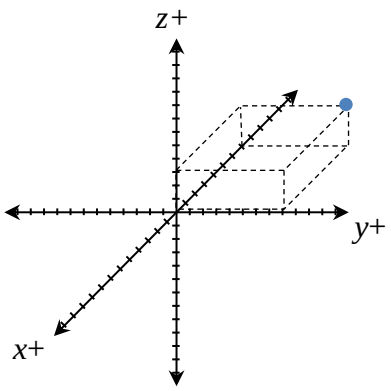
31. Which joint type can be used to simulate an electric motor?
    - ❍ Axle
    - ❍ Fixed
    - ⊘ Hinge
    - ❍ Spring

True or False

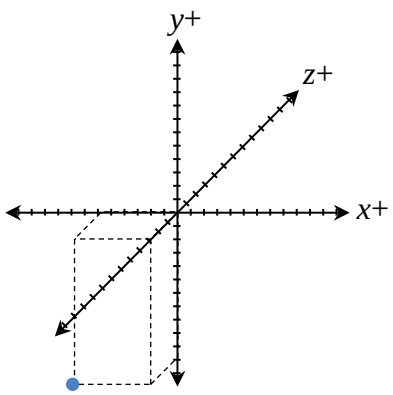
32. [T] F A .blend file can be dropped into an asset folder with a mouse.
33. T [F] Unity will always position new objects added to the scene at (0, 0, 0).
34. [T] F You can reposition an object in the scene using a mouse.
35. T [F] Changes you make to properties while you are playing the game will be saved.
36. T [F] A new Unity scene always includes 2 cameras and 3 directional lights.
37. T [F] Every GameObject is also a Rigidbody.
38. [T] F An object using a HingeJoint will always be a Rigidbody.
39. [T] F Materials can be dragged from the assets folder onto a GameObject in the scene.
40. T [F] Camel-Casing means to begin each word with a letter or symbol derived from Arabic.

Write the coordinates of the given point. Note that the system is not always in the same orientation.

41. (-7 , 8 , 3)



42. (-6 , -11 , -3)



43. (-5 , -4 , 0)