

Location Class Reading Worksheets

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10:43 AM

Name: _____

AP Computer Science – GridWorld Part 3

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Location Class Reading Worksheets

1. Read page 1 of the student manual.
2. What does a grid contain?
3. Any instances of a class that extends the Actor class must have the relationship **is-a** _____.
4. How many classes implement the Grid interface?
5. What does an Actor know?
6. Answer the following **is-a** questions:
 - a. Bug is-a _____
 - b. Flower is-a _____
 - c. BoundedGrid is-a _____
 - d. Actor is-a _____
7. Answer the following **has-a** questions:
 - a. Actor has-a _____
 - b. Bug has-a _____

The Location Class:

8. Read pages 1 – 4 of the Student Manual.
9. Every Actor that appears in the grid must have a _____.
10. Instances of what class represent locations in the grid?
11. What does *encapsulation* mean?
12. The Location class encapsulates what aspect of the grid?
13. What relationship does Location provide methods for?
14. Cells that run vertically up and down the grid are called what (rows or columns)?
15. What is the smallest row number?
16. What unit of measure is used to represent compass directions?
17. How many constants based on compass directions are provided in the Location class?

18. Refer to the following line of code from the Location class:

```
public static final int NORTH = 0;
```

What does *static final* mean?

19. Write an example of how to use the Location constant EAST in some bug class.

20. Write a segment of code to have Bug bugBoy change its color to blue if it is facing NORTH and to change its color to red if it is not facing north.

21. What is the data type of Location.SOUTHWEST?

22. What is the 0 direction for the Location class?

23. What is the 450 direction for the Location class?

24. What is the value of Location.NORTHWEST?

25. What is the numerical value of Location.EAST + Location.SOUTH?

26. How many constants based on the turn angle are provided in the Location class?

27. What is the data type of Location.LEFT?

28. What is the constant for 0 degree turn angle for the Location class?

29. What is the value of Location.HALF_LEFT?

30. What is the value of Location.FULL_CIRCLE + Location.HALF_LEFT?

31. Write a segment of code to get an actor to turn around.

32. What two parameters are required of the Location constructor?

33. Create a reference Location named loc1. Instantiate the Location object with a row number of 3 and a column number of 2.

34. How many new accessor methods exist for the Location class?

35. Write the code to output the row for loc1.

36. Write the code to output the column for loc1.

37. List the Location methods that give information about the relationship between locations and directions.

38. What direction is an actor traveling if rows are increasing and columns are decreasing?

39. What is compared in the equals method of Location?

40. What is compared in the compareTo method of Location?

41. Write a segment of code to output the name of Bug bugBoy or Bug bugGirl, with the lowest Location.

42. When will the loc1.compareTo(loc2) method return a positive number?

Assume: loc1 = new Location (row1, col1) and loc2 = new Location (row2, col2) (Describe every situation!)

43. Do questions **Do You Know?** Set 3 found on page 4.

and
col 1 < col 2