

Unit 03_010 — printf

1. What format code does Printf use for each of the following data types?

- integers
- real numbers
- Strings
- characters

2. Does the printf method automatically include a newline character?

3. Assume there are variables `length` and `width` and a double variable named `area`. Write the full `System.out.printf()` statement that prints the following statement. Fill in the blanks with the length, width, and area. Make sure you include a newline.

A rectangle with a length of ____ and a width of ____ has an area of ____.

Unit 03_020 Characters and Strings

4. In Java, is a `char` the same as a `String`? Explain the difference.

5. In Java, what is the difference between single quotes and double quotes? Is `'B'` and `"B"` the same?

6. Is `'\n'` one character or two?

7. What are "ASCII Codes?"

8. What are the ASCII codes less than 32 called?

9. • `' '` (space) _____

- '0' (zero) _____
- '@' _____
- 'A' _____
- 'a' _____
- '' (tilde) _____

10. What is the biggest problem with ASCII codes?
11. How many bits does extended ASCII use?
12. Does Java use ASCII or Unicode to represent character data?
13. How many bits does Java use to represent type char?
14. Is ASCII built into Unicode, or did Unicode start from scratch?

Unit 03_025 Classes and Objects

15. What are the 8 "primitive" data types in Java?
16. What two things does a class define?
17. What is the difference between an object and a class?
18. I didn't mention it at this point in the video, but are objects capitalized?
19. What is an instance of a class?

20. What is the Java API?
21. What is a method in Java?
22. How do you call a method in Java?
23. Suppose you have a string called "sentence." Write the statement needed to print the number of letters in sentence.

Unit 03_027 Methods

24. What is a function?
25. What is an "argument?" Do all functions have arguments? What happens when a function has more than one argument?
26. What is a "method?"

Unit 03_03 The String class

27. How can you determine the return type of a method using the Java API?
28. For each of the following, specify the return type and the arguments, if any. The last one was not covered in the video. Look it up for yourself in the API
 - `length()` Return: _____ Arguments:
 - `charAt()` Return: _____ Arguments:
 - `trim()` Return: _____ Arguments:
 - `toUpperCase()` Return: _____ Arguments:
 - `substring()` Return: _____ Arguments:

29. Would this code work? Try typing it into IntelliJ. What is the answer? My wife counted 8 characters in the string. Is that what the output says? Why is it different? If it does not work, fix the errors

```
System.out.println ( "abcdef\n".length() );
```

Unit 03_040 Concatenating Strings

30. What are the three methods of concatenating strings? Which is the easiest?
31. Suppose you have the following code fragment. Write the code to concatenate the title, the word "by" and the author. First, do it with the + method. Then do it with string format. Write your code below. Which one do you think is easier?

```
String title = "The Raven";  
String author= "Edgar Allen Poe";  
String byline;
```

Write the two lines of code. Which do you think is better?

Unit 03_060 Promotion

32. What is Promotion? How does Java convert from primitive types to strings?

Unit 03_070 Mixing int and double

What is the problem with the following statement? Rewrite the statement and fix the problem.

```
int markup = 3/2;  
double wholesale = 100;  
double retail = wholesale * markup;  
System.out.println(wholesale);
```

Unit 03_080 Block Comments

33. Write the `/*` block comment `*/` you should put in a program. For the description, make up a program you think would be interesting but not too hard. If someone suggests something involving mixed mode arithmetic I might consider using it as a homework assignment.
34. What class is normally used to read from the keyboard?
35. Do import statements normally go above or below the opening comment for a program?
36. What does `echo print` mean?
37. Look at the Scanner API. What method is used to read each of the following data types?
- `int`
 - `double`
 - `byte`
 - `String`
 - `char`

Note from the instructor: This question is not really fair on a couple of points. It seems like the method for `String` should be `.nextString()`, but it is not. The original version of `Scanner` only read `Strings`. Therefore there was no need to have methods for each type. There was only one `.next()` method, so it did not need to specify `String`.

The question on `char` is also flat out mean for me to even ask. It looks like they never finished all the primitive methods; don't spend too long looking.

38. Write the code (other than the import) that will read a double from the keyboard. The program should prompt the user with a message "What is the distance in miles? Be sure to leave a blank space after the prompt, but leave the cursor on the same line. Then read the distance from the keyboard. After reading the data, echo print the distance that you read in.

39. Do you have any other questions?