

This exam is open text book but closed-notes, closed-calculator, closed-neighbor, etc. Questions are worth different amounts (in particular, the final question is worth substantially more than any other question), so be sure to look over all the questions and plan your time accordingly. Please sign the honor pledge here:

---



---



---

Page 1	___ / 4
Page 2	___ / 25
Page 3	___ / 12
Page 4	___ / 13
Page 5	___ / 16
Page 6	___ / 10
Page 7	___ / 20
<b>Total</b>	<b>___ / 100</b>

*Note: When an integer type is required use **int**, when a floating-point type is required use **double**.*

1. (2 points) What section are you in?

\_\_\_ CS 101-E

\_\_\_ CS 101-2 (lab 7-8:30 PM Thu)

\_\_\_ CS 101-3 (lab 12-1:30 PM Fri)

\_\_\_ CS 101-4 (lab 2-3:30 PM Fri)

2. (2 points) What is your overall impression of the class so far? Check only one in each column.

\_\_\_ Too slow

\_\_\_ Too easy

\_\_\_ Too fast

\_\_\_ Too hard

\_\_\_ Just right

\_\_\_ Just right

3. (3 points) What is the value of the following expression?  
 $(0.75 * 4.0)$
  
4. (3 points) What is the value of the following expression?  
 $((3/4) * 4)$
  
5. (3 points) What is the value of the following expression?  
 $(25 \% 5 - 2)$
  
6. (3 points) What is the value of the following expression?  
 $(12 / 1+5)$
  
7. (3 points) What is the value of the following expression?  
 $(12 / 5 + 1.0)$
  
8. (3 points) What is the value of the following expression?  
 $(12 / 5.0 + 1)$
  
9. (4 points) When a Java application program is run, execution always begins by calling a certain method. Show *exactly* how you declare this method.
  
  
  
  
  
  
  
  
  
  
10. (3 points) Give a Java statement to define and initialize a floating-point constant to represent the number of radians per degree (which is  $\pi/180.0$ ). You may approximate this value in your code as 0.0175.

11. (3 points) Give a Java statement to define and initialize an integer variable to represent how many pigeons fit in a pigeonhole (you pick the value).

12. (3 points) Does the following code snippet compile without error? If not, explain the error that prevents the code from compiling. If the code does successfully compile, give the value of *all* variables after the code snippet executes:

```
int i = 3;
int n = 4;

i = n;
n = i;
```

13. (3 points) Does the following code snippet compile without error? If not, explain the error that prevents the code from compiling. If the code does successfully compile, give the value of *all* variables after the code snippet executes:

```
int i = 3;
int n = 4;

i = 2 * i * n;
```

14. (3 points) Does the following code snippet compile without error? If not, explain the error that prevents the code from compiling. If the code does successfully compile, give the value of *all* variables after the code snippet executes:

```
double pi = 3.14;
int n = 2;

n = n * pi;
```

15. (3 points) Does the following Java code snippet compile without error? If not, explain the error that prevents the code from compiling. If the code does successfully compile, give the value of *all* variables after the code snippet executes:

```
double pi = 3.14;  
double radius;  
double circumference = 2.0 * pi * radius;
```

16. (3 points) Write a single statement that declares and initializes a **Scanner** object that will read user input from the keyboard.

17. (4 points) Write a code snippet that prompts the user to enter the number of blackbirds per pie, and uses the **Scanner** object declared above to read it into an integer variable.

18. (3 points) Write a Java comment stating that most pies contain 24 blackbirds.

19. (6 points) Explain BRIEFLY (30 words or less total) what the difference is between:

```
String s;
```

and

```
String t = null;
```

and

```
String u = "";
```

20. (10 points) Consider the following code segment:

```
String quote = "the quick brown fox";  
System.out.println("length = " + quote.length());  
System.out.println("indexOf('q') = " + quote.indexOf('q'));  
System.out.println("indexOf('z') = " + quote.indexOf('z'));  
System.out.println("substring(0,2) = " + quote.substring(0,2));  
System.out.println("substring(4) = " + quote.substring(4));  
System.out.println("charAt(8) = " + quote.charAt(8));
```

What is the output?

21. (10 points) Using the memory depiction techniques that we have used in the book and in lecture, draw what memory looks like after the following Java code completes.

```
String s = "foo";  
String t = s;  
Rectangle r = new Rectangle (1,2,3,4);  
Rectangle s = new Rectangle (1,2,3,4);  
int x = 5;  
int y;
```

22. (20 points) Write an entire, complete Java program that prompts the user to input their first, last, and middle names (separately and in that order), then prints out their name in the following form: "Luebke, David P." Note that you should abbreviate their middle name (including the period). This program will have to be in a class named **NameGames**. For brevity you may omit the "good programming practices": comments, printing a legend, echoing input, etc. You may use the back of this page if you need more space.

Your program should go through the following steps:

- 1) Create a **Scanner** object
- 2) Prompt for and obtain the three names
- 3) Find the middle initial from the middle name (hint: you can use **substring()**)
- 4) Create the final form of the name (i.e. "Luebke, David P.")
- 5) Print the output