

This assignment contains 7 pages (including this page) and 22 questions. Check to see if any pages are missing.

These pages are indexed to the videos for this course.

Grading

This material comes mostly from Chapter 03 in the textbook.

Video 04.010 Booleans

1. What are the two possible values used by booleans?
2. Create a boolean variable called `hasWheels` and set its initial value to `false`.
3. Write the java symbol used for each operator:
 - Less Than
 - Less Than or Equal To
 - Greater Than
 - Greater Than Or Equal To
 - Equal To
 - Not Equal To
4. Suppose there is an integer variable called `golfScore`. Create a boolean variable called `beatPar`. Set `beatPar` to `true` if the `golfScore` is less than 70 and `false` if it was 70 or higher. Do *not* use an if statement or a conditional.



Video 04.202 Truth Tables

5. Assume the following variables are defined:

```
boolean isOldEnough = false;  
boolean isTallEnough = true;  
boolean isFastEnough = true;  
boolean hasSeniority = false;
```

Evaluate the following boolean expression. (Is it true or false?)

```
isOldEnough || isTallEnough && isFastEnough || hasSeniority
```

Explain your answer in the space below



6. Assume the following variables are defined:

```
int age = 25;
int pointsEarned = 25;
int friendCount = 25;
```

Evaluate the following boolean expression. (Is it true or false?)

```
age > 30 || pointsEarned > 20 && friendCount > 20
```

7. Which of the following places the parenthesis so that it matches the default precedence?

```
(age > 30 || pointsEarned > 20) && friendCount > 20
age > 30 || (pointsEarned > 20 && friendCount > 20)
```

8. The sign at an amusement park ride says "You must be over 42 inches tall or be at least 8 years old and accompanied by an adult." Assume there are defined boolean variables for `over42`, `over8`, and `withAdult`. Write the boolean expression that evaluates whether the person may take the ride. Complete the following truth table for the ride.

over42	over8	withAdult	mayRide
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

Video 04.040 If Statements, Part 1

9. What are two syntax differences between Python and Java?

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-



10. When doesn't Java need { } around the body of an if or else?
11. Why is it usually a good idea to put in the curly braces, even when they are not needed.
12. Assume the following two variables are declared.

```
int age;  
double discount
```

Write an if statement that assigns discount to 0.10 if age is at least 65 or if age is no more than 18. Make sure you use proper indentation.

13. Does every if statement need an else clause? Explain your answer

Video 04.030 Part 2, Two-handed hammering

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14. rewrite the following if statement so that it is not tacky.

```
if(age >= 21){  
    isOldEnough = true;  
}else{  
    isOldEnough = false;  
}
```



15. rewrite the following if statement so that it is not tacky. (You only need to rewrite the tacky part. In fact, you can just cross out the tacky part.)

```
if(isBirthday == true){  
    System.out.println("Happy Birthday!");  
}else{  
    System.out.println("Have a nice day.");  
}
```

Video 04.047 Danger Zone

16. What is wrong with the following fragment of an if statement?

```
if(1.1 + 1.1 + 1.1 == 3.3)
```

17. Is it OK to use == when working with Strings? How are String variables different than type like int, double, and boolean?

18. Is it OK to use <and >operators when working with Strings?

Video 04.050 Switch Statement

19. What data types may be used to control a switch statement (assuming the universal or classic Java version)
20. How is `System.err.println("xyz");` different than `System.out.println("xyz");`



21. A program prints the following menu on the screen.

1. Broccoli Beef
2. Hamburger Patty
3. Bœuf Haché
4. Fried Chicken
5. Rice Bowl with Vegetables

The program has read the user's choice into an integer called `choice`. Your job is to write a switch statement that saves the user's choice as a variable called `item`. If the user picks any number other than 1 through 4, the item should be "Invalid Selection." Also, Bœuf Haché is just French for "Hamburger Patty." So if the user picks either 2 or 3, it should be listed as Hamburger Patty. Use the "fall through" to do one assignment for both options 2 and 3.

Video 04.060 Conditional Operator

22. You are writing the Java version of the song "99 Bottles of Beer on the Wall." There is a variable for the number of bottles remaining. You need the program to print the term "beers" when the number is plural or zero, and print "beer" when there is exactly 1 bottle. Here is the if-statement version. Write the same code as a single conditional.

```
if(remaining == 1){
    System.out.printf("%d bottle of beer on the wall",remaining);
}else{
    System.out.printf("%d bottles of beer on the wall", remaining);
}
```

