Practice with boolean operators

1. For each of the following lines of code, what will print?

(a) `System.out.println(1 + 2 + "hello");`

(b) `System.out.println("hello" + 1 + 2);`

(c) `System.out.println("hello" + (1 + 2));`

2. Consider the following code:

```
double x = keyboard.nextDouble();
if((int)(x*10) % 5 == 0 && (int)(x + 0.5) >= (int)x + 1
        && !(x <= 7 || !(x < 9)) && x - 2 == x/3 * 2 + 0.5) {
   System.out.println(x + " works!");
}
else {
   System.out.println(x + " doesn't work.");
}
```

There is only one value of `x` for which this piece of code will print that `x` works. That is, we could replace this code with the following:

```
if(x == _____) {
   System.out.println(x + " works!");
}
else {
   System.out.println(x + " doesn't work.")
}
```

Fill in the blank.

3. In the made-up course COSC-001, grades are based on the following values:

- Homework (stored in `int hw` and ranging from 0 to 100)
- Midterm 1 (stored in `int mt1` and ranging from 0 to 100)
- Midterm 2 (stored in `int mt2` and ranging from 0 to 100)
- Final exam (stored in `int finalExam` and ranging from 0 to 100)
- Number of absences (stored in `int absences`)

In the final course grade, homework is worth 30%, each midterm is worth 20%, and the final is woth 30%. However, there are two special rules:

- If your midterm 1 score is at least 20 points lower than your midterm 2 score, and you have at most 3 absences, then your midterm 1 only counts for 10% and your midterm 2 counts for 30%.
- If you have a perfect attendance record, or if you have at most 2 absences but your homework score is at least 90, then you get 2 points added to your final grade.

Given initialized variables for each of the five items above, write some if statements to set an `int grade` to the student's final numeric grade.