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AP Computer Science A (Java)

Boolean Practice Problems

Name your file LastnameBoolean.docx

1. Consider the following variable initializations:

int x = 27; int y = -1; int z = 32; boolean b = false;

What is the value of each of the following Boolean expressions? (Answer true or false.)

1. !b true
2. (x > y) && (y > z) false
3. (x == y) || (x <= z) true
4. (x % 2 != 0) && b false
5. (x / 2 == 13) || b || (z \* 3 == 96) true
6. (z < x) && (z > y) || x >= y) true
7. Using “Boolean Zen” write an improved version of the following method, which returns whether the given number of cents would require any pennies (as opposed to being an amount that could be made exactly using coins other than pennies):

public static boolean hasPennies(int cents) {

boolean nickelsOnly = (cents % 5 == 0);

if (nickelsOnly == true) {

return false;

}

else {

return true;

}

}

Write your answer below:

public static boolean hasPennies(int cents) {

return cents%5 != 0;

}

1. Consider the following variable declarations: int x; int y; int z; boolean b;

Write a new boolean expression that is the negation of each of the following boolean expressions. Use De Morgan’s laws rather than simply writing a ! at the beginning of each entire expression.

* 1. (x > y) && (y > z) (x <= y) || (y <= z)
  2. (x == y) || (x <= z) (x != y) && (x > z)
  3. (x % 2 != 0) && b (x%2 == 0) || !b
  4. (x / 2 == 13) || b || (z \* 3 == 96) ! (x / 2 == 13) && !b && (z\*3 != 96)
  5. (z < x) && (z > y || x >= y) ! (z<x) || (y>=z&&x<y)