1. ”Dog” + 2 > 3 && true

Steps:

“Dog2” > 3 && true

false && true

false

Final Solution: false

2. true || false && true

Step1:true || false && true -first you need to solve the problem with && because it became first than ||.

Step2:true || false -the problem is false because in logical operation && is AND. So if the value is false AND true return FALSE.

Step3:true || false - The symbol || is equal to OR. So, if the value is true OR false return TRUE

Final Solution: true

3. var firstName = “trouble”;

var lastName = “double”;

```
(firstName === "Batman" || firstName === "Trouble" ) &&
(lastName === "Batman" || lastName === "kong" )
```

Step1:((firstName === "Batman") || (firstName === "Trouble")) &&

((lastName === "Batman") || (lastName === "kong"))

-I needed to compare if the variable firstName is exact equal the "Batman". In this case firstName storage "Trouble" that is DIFFERENT from "Batman". It is False.

-After that I looked the next (). I compared the if the variable firstName that storage "Trouble" is exact equal the statement "Trouble". It is. So is true

-I checked if the variable lastName which is storage "double” is exact equal the "Batman". It is DIFFERENT, so it is false.

-I checked if the variable lastName which is stogare "double” is exact equal the "kong", It is DIFFERENT, so it is false.

```
false || true && false || false
```

Step2:Now, I will calculating && first because became first than OR. So, true AND false result in false.

```
Step3:  false || false || false
```

I will solve the problem left to right. false OR false is False.

Step4: false || false

False OR false is false

Final Solution: false

4. var a = 21;

a += 3;

var b = 5;

b -= a;

(a < 1) || (b >= 1) && (a != b)

Step1:first I need to find the value of a and b. So:

var a = 21; //declaring the value of variable a. This means storage the value 21 in the variable a.

a += 3; // this is the same that a=a +3. I need to solve this problem. a= 21 +3. So a=24.

var b = 5; //declaring the value of variable b. This means storage the value 5 in the variable b.

b -= a; //this is the same that b=b-a. I need to solve this problem. b=5-24. So b=-19

Step2:After, I found the value of a and b I need solve the expression (a < 1) || (b >= 1) && (a != b) which is in the ().

-(a < 1) is false- because a=24 which is great 1.

-(b >= 1) is false-because b=-19 which is less 1.

-(a != b) is true-because a=24 and b=-19 which is not equal.

-So the new expression is false || false && true

Step3:I will solve && first. So false AND true is false

Step4: false || false - is false because in logical operation false OR false is false.

Final Solution: false

5. var pet = “alligator”;

var escape = “boat”;

“The “ + pet + “ escaped. It was last seen on a “ + escape;

Step1:

var pet = “alligator”; //declaring the variable pet and attribute the "alligator” to be storage in the pet variable.

var escape = “boat”; //declaring the variable escape and attribute the "boat” to be storage in the pet variable.

“The “ + pet + “ escaped. It was last seen on a “ + escape; //this is the output that I want to display.

Step2:

-The system will display: The alligator escaped. It was last seen on a boat.

- because everything that stayed between the string, it displayed the same things. And the variable that is declared showed the information that is storage.

Final Solution: The alligator escaped. It was last seen on a boat.

6. var George = “orge”;

var nickname = “Conquerer”;

var combinedName = George + “ “ + nickname;

(combinedName === George) || (George !== "George")

&&(combinedName === "Conquerer") || (nickname === 42)

Step1:First I will solve the problem inside the ().

-(combinedName === George) – I needed to compare if the variable combinedName is exact equal to the "George". In this case combinedName store George + “ “ + nickname that is DIFFERENT from "George". It is False.

-(George !== "George")- I need to compare if the variable George is not equal "George". In this case is not equal. So it is True

-(combinedName === "Conquerer")- I need to compare if the variable combinedName is exact equal to "Conquerer". It is different so it is false.

-(nickname === 42)- I need to compare if the variable nickname is exact equal to 42. It is different. So, it is false.

false || true && false || false

Step2:I will solve the && first. So true AND false is false

false || false || false

Step3: I will solve the OR the left to right. So False OR false is FALSE. Again, false OR false is false

Final Solution:false

7. ((42 === "42") && (42== "42")) || ((42 < "Whistle")

|| (42 > "234"))

Step1:I will solve first the problem in ()

-((42 === "42") && (42== "42"))

-In the first I need check if 42 is exact equal to 42 which is false, because the second 42 is a string. And the first is number. The other () is the same check so it is false.

-(false && false)

false AND false is false.

-((42 < "Whistle")|| (42 > "234"))

In the first, I need check if 42 is less whistle, which is false.

-I checked if 42 is great "234" , which is false.

-(false|| false)

False OR false is false

Step2:false ||false

False OR false is false

Final Solution:false

8. ((24*23+12/2+22) % 2 === 1)

Step1:first I will solve the problem inside the ()

-(24*23+12/2+22)

First I will solve the multiplication problem. 24 * 23=552

(552+12/2+22)

Second, I will solve the division problem. 12/ 2=6

(552+6+22)

Third, I will solve the addiction problem. 552+6+22=580

Step2: (580% 2 === 1)

I will solve the modulo problem. 580%2 =0

Step3: (0===1)

It is false because 0 is not exact equal to 1

Final Solution: false

9. ((Math.pow(3,3) === 27) || (Math.cos(Math.PI) === 0)) ||

(Math.pow(Math.sin(1.2),1)+Math.pow(Math.cos(1.2),2) === 1)

Step1:First, I will solve the problem inside the ()

-((Math.pow(3,3) === 27) || (Math.cos(Math.PI) === 0))

- (Math.pow(3,3) === 27)

-First, solve the Math.pow(3,3)- that is equal to 27

-after that I will compare if 27 is exact equal 27, which is true

-(Math.cos(Math.PI) === 0)

- frist, solve the Math.cos(Math.PI)- that is equal -1

-after that I will compare if -1 is exact equal to 0, which is false

-true || false

-true OR false is true

-(Math.pow(Math.sin(1.2),1)+Math.pow(Math.cos(1.2),2) === 1)

-(Math.pow(Math.sin(1.2),1)

-frist, solve the Math.sin(1.2)- that is equal to 0.9320390859672263.

-after that the Math.pow(0.9320390859672263,1), that is equal to 0.9320390859672263.

-Math.pow(Math.cos(1.2),2)

-first, solve the Math.cos(1.2),- that is equal to 0.3623577544766736

-after that the Math.pow(0.3623577544766736,2), that is equal to 0.13130314222937728

-0.9320390859672263. + 0.13130314222937728, that is equal to 1.0633422281966036

-1.0633422281966036 ===1

It is false because 1.0633422281966036 is not exact equal to 1

Step2:true ||false

True OR false is true

Final Solution:true

10. var sentence = “The world is green!”;

sentence.substring(4,9) **===** "world" **&&** sentence.length < 20

&& sentence.length > 5 **&&** sentence.substring(0,3) **===** "The

world is red".substring(0,3);

Step1:frist, I will analyze each statement.

-the sentence.substring(4,9) is = “world”

- sentence.length < 20 - sentence.length is equal 18 which is less than 20. So it is true

- sentence.length > 5 - sentence.length is equal 18 which is great than 5. So it is true

- sentence.substring(0,3) is =”The”

-"The world is red".substring(0,3); is =”The”

“world” **===** "world" **&&** true **&&** true **&&** ”The” **===** "The”;

Step2:I will solve first the exactly equal problem.

-true **&&** true **&&** true **&&** true

I will solve the left to right logical AND. So true AND true is equal true

-true **&&** true **&&** true

true AND true is equal true

-true **&&** true

True AND true is equal true

Final Solution:true

11. var bigCar = true;

var bearTrap;

"The variable bigCar has the value : "+ bigCar + ", while

variable bearTrap is " + bearTrap + "If I compare bearTrap

with undefined I get " + bearTrap===undefined

Step1:I will sol the first statement:

-"The variable bigCar has the value : "+ bigCar + ", while variable bearTrap is " + bearTrap + "If I compare bearTrap with undefined I get " + bearTrap.

It will show: "The variable bigCar has the value : **true**, while variable bearTrap is **undefinedIf** I compare bearTrap with undefined I get **undefined**"

This happened because I do not attribute value to the variable bearTrap. So the console shows the undefined.

Step2: "The variable bigCar has the value : true, while variable bearTrap is undefinedIf I compare bearTrap with undefined I get undefined" **===** undefined

-is false because the string that shwed is diferente the undefined.

Final Solution: false