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Module B.7 Level 1 Answers

1. Done😊
2. a) The “for” statement is used to repeat a block of statements which are enclosed in curly braces. Usually, an increment counter is used to increment (increase) or terminate the loop. The “for” statement is useful for any repetitive operation. It is often combined and used with arrays to operate on collections of data/pins.

An example of how it is used is:

for (initialization; condition; increment) {

//statement(s);

}

<https://www.arduino.cc/reference/en/language/structure/control-structure/for/> (link from where I got the information)

b) The loop ends when the condition becomes false

c)- A “while” loop loops continuously and infinitely until the expression in the parenthesis (brackets) becomes false. Something must change the tested variable, otherwise the while loop will never exit.

- The “do…while” loop works the same as the “while” loop, with the exception that the condition is tested at the end of the loop, so the “do” loop will always run at least once.

\*\*The “for” loop loops information in curly braces whereas the “while” and “do” loop loop information in the parenthesis\*\*

1. a) All comparison operators defined for the C language other than the “<” comparator:

* != (not equal to)
* <= (less than or equal to)
* == (equal to)
* > (greater than)
* >= (greater than or equal to)

b) An example of the “for” loop to use the “<=” comparator:

// Dim an LED using a PWM pin

int PWMpin = 10; // LED in series with 470 ohm resistor on pin 10

void setup()

{

// no setup needed

}

void loop()

{

for (int i=0; i <= 255; i++){

analogWrite(PWMpin, i);

delay(10);

}

}

<https://www.arduino.cc/reference/en/language/structure/control-structure/for/> (link where I got the example from)

1. a) The “++” incrementor operator increments the value of a variable by 1 whereas the “=+ 1” assignment sets a variable ( in this case, the variable is set to 1).

b) An example where the “for” loop uses “=+”:

for(int x = 2; x < 100; x = x \* 1.5){

println(x);

}

<https://www.arduino.cc/reference/en/language/structure/control-structure/for/> (link from where I got the example)

\*\*in this example, “x = 2” is “=+” (the variable of 2 is being assigned)