

Arduino Programming: “if” statements

ME 120

Mechanical and Materials Engineering

Portland State University

<http://web.cecs.pdx.edu/~me120>

Logical statements to control code execution

“if” construct to make a single choice

```
if ( something is true ) {  
    code block  
}
```

“if – else” construct to choose either/or

```
if ( something is true ) {  
    code block 1  
} else {  
    code block 2  
}
```

See

<http://arduino.cc/en/Reference/If>

<http://arduino.cc/en/Reference/Else>

Syntax of “if” construct

“if” construct to make a single choice

```
if ( something is true ) {  
    code block  
}
```

“something is true” must be a logical expression

Examples

- ❖ if ($x < 0$)
- ❖ if ($y \geq z$)

Symbol	Meaning
<	Is less than
>	Is greater than
==	Is equal to
>=	Is greater than or equal to
<=	Is less than or equal to
!=	Is not equal to

Test your understanding

What is the value of z?

a.

```
x = 2;
y = 5;
if ( x < y ) {
    z = y - x;
}
```

b.

```
x = 2;
y = 5;
if ( x > y ) {
    z = y - x;
}
```

c.

```
x = 2;
y = 5;
if ( (y-x) <= 3 ) {
    z = y/x;
}
```

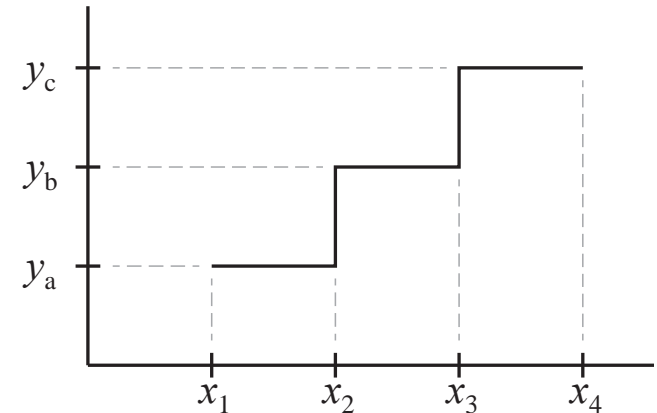
d.

```
x = 2;
y = 5;
if ( (y-x) <= 3 ) {
    z = y/x;
} else {
    z = 0.0;
}
```

Compound “if-else-if”

Implement a piecewise function

```
if ( x<x1 ) {  
    Serial.println("Error: x<x1");  
} else if ( x<x2 ) {  
    y = ya;  
} else if ( x<x3 ) {  
    y = yb;  
} else if ( x<x4 ) {  
    y = yc;  
} else {  
    Serial.println("Error: x>x4");  
}
```



Notice the error-handling for $x < x_1$ and $x > x_4$