

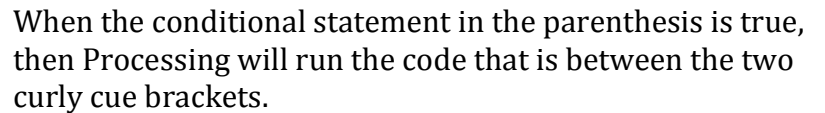
Name: _____

Using 'if' statements - Boolean pt 1

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A powerful tool we can learn to use in Processing uses a type of statement called a _____. These statements can either be _____ or _____. The way we enter one of these statements into Processing looks like this:

```
if ( _____ ) {  
  
    'this is where we  
    would write code'  
  
}
```



When the conditional statement in the parenthesis is true, then Processing will run the code that is between the two curly cue brackets.

The conditional statement we make will use one of these relational operators.

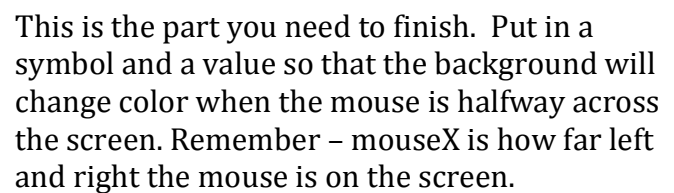
symbol	meaning
>	
<	
>=	greater than or equal to
<=	
==	equal to
!=	

Finish the following code and then type it in.

```
void setup () {  
    size (400,400);  
}
```

```
void draw() {  
    background(50);
```

```
if (mouseX _____){  
    background (100, 0, 250);  
}  
}
```



This is the part you need to finish. Put in a symbol and a value so that the background will change color when the mouse is halfway across the screen. Remember - mouseX is how far left and right the mouse is on the screen.

Here is another challenge. Finish the following code so that when the mouse is on the top half of the screen, the screen will be yellow and when the mouse is on the bottom half of the screen the screen will be blue.

```
void setup () {
  size (400,400);
}

void draw() {
  background(100);

  if (mouseY < 200){
    background (255, 255,0);
  }

  if (mouseY > 200){
    background (0,0, 255);
  }
}
```

Let's go back to the idea of a moving ellipse. We can use if statements to get the ellipse to bounce back and forth. One way to do this is to create a variable for the velocity of x. That way, we can have the velocity change. We can have the position of the ellipse decide when to have the velocity change.

```
float px;
float vx;

void setup() {
  size ( 800, 400);
  px = 20;
  vx = 0;
}

void draw() {
  background(128);
  ellipse(px, 200, 40, 40);
  px = px + vx;
  if (px == 20) {
    vx = 1;
  }

  if (px == 380) {
    vx = -1;
  }
}
```

But wait...is something wrong? What do you need to do to fix it?

Great, now that we have the ball moving clear across the screen, let's add some color. Find the first 'if' statement in your code and add the line 'fill (250,0,0);' just above the 'vx = 1;' line. That small section of your code should look like this now:

```
if (px == 20) {  
    fill (250,0,0);  
    vx = 1;  
}
```

Next, add a similar 'fill' line in the next 'if' section. This color is up to you to choose.

Can you figure out a way to have the ellipse change color in the middle of the screen?

How would we get the ellipse to bounce up and down instead of left and right?