

Chapter 2 Recap

- basic drawing commands
 - `rect()`, `line()`, `size()`, `background()`, `stroke()`,...
- function call statements
 - `rect(10,10,40,60);`
- working with the Processing environment
- Comments

Chapter 3

- `draw()`
- `setup()`
- `mouseX`, `mouseY`
- `frameRate()`

```
// A circle following the mouse leaving a trail behind. Take  
// note of draw and setup – these are new.
```

```
void setup() {  
    size(400,400);  
}  
void draw() {  
    ellipse(mouseX, mouseY, 10, 10);  
}
```

```
// A circle following the mouse, not leaving a trail behind

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

void draw() {
    background(150);
    ellipse(mouseX, mouseY, 10, 10);
}
```

// Will this leave a trail of circles (A) or show just one (B)?

```
void setup() {  
    size(400,400);  
    background(255,0,0);  
}  
void draw() {  
    ellipse(mouseX, mouseY, 10, 10);  
}
```

Any Visible difference in output? (A) for Yes, (B) for No

```
/*
Draw a rudimentary car.
@author Dustin Adams
*/
void setup() {
    size(400,400);
}
void draw() {
    // draw the body
    rect(100,100,200,50);
    // draw the wheels
    ellipse(150,150,50,50);
    ellipse(250,150,50,50);
    // draw the windshield
    line(150,100,200, 50);
}
```

```
/*
Draw a rudimentary car.
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*/
void setup() {
    size(400,400);

    // draw the body
    rect(100,100,200,50);
    // draw the wheels
    ellipse(150,150,50,50);
    ellipse(250,150,50,50);
    // draw the windshield
    line(150,100,200, 50);
}
```

```
// moving the car around
void setup() {
    size(400,400);
}
void draw() {
    background(100);
    // draw the body
    rect(mouseX,mouseY,200,50);
    // draw the wheels
    ellipse(mouseX+50,mouseY+50,50,50);
    ellipse(mouseX+150,mouseY+50,50,50);
    // draw the windshield
    line(mouseX+50,mouseY,mouseX+100, mouseY - 50);
}
```

```
// stroke thickness based on mouseX. Taken from exercise 3-7 in
// Learning Processing

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

void draw() {
    strokeWeight(abs(mouseX - pmouseX));
    line(pmouseX, pmouseY, mouseX, mouseY);
}
```



```
// similar to example from the last slide, but this changes
// background based on user input.

void setup() {
    size(400, 400);
    background(175);
}

void draw() {
    strokeWeight(abs(mouseX-pmouseX));
    line(pmouseX, pmouseY, mouseX, mouseY);
}

void mousePressed() {
    background(255,0,0);
}

void keyPressed() {
    background(175);
}
```

```
// frameCount keeps a running total of how many frames have  
// been shown during the life of the sketch.  
// This sketch shows an ellipse moving across the screen  
// following the frameCount.
```

```
void setup() {  
    size(400,300);  
}  
void draw() {  
    background(255);  
    ellipse(frameCount, 150, 40, 40);  
    println(frameCount);  
}
```

```
// This sketch shows a circle growing in size as the
// frameCount increases

void setup() {
    size(400,300);
}

void draw() {
    background(255);
    ellipse(200, 150, frameCount, frameCount);
    println(frameCount);
}
```

```
// The beginnings of a sunset
```

```
void setup() {  
    size(400,300)  
    fill(255, 255, 0); // yellow for the sun  
    background(175,212,255); / light blue sky  
    noStroke();  
}  
  
draw() {  
    Ellipse(200, frameCount, 40);  
}
```

How many mistakes can you find in this program?

- A: 1-2
- B: 3
- C: 4
- D: 5
- E: more than 5

```
// Default frameRate is 30 frames per second. This example slows  
// it down to 1 frame per second.
```

```
void setup() {  
  frameRate(1);  
}
```

```
void draw() {  
  background(100);  
  ellipse(mouseX, mouseY, 30,30);  
}
```

```
// Example 3-5 from Learning Processing
```

```
void setup() {  
  size(200, 200);  
  background(255);  
}  
void draw() {  
  
}  
void mousePressed() {  
  stroke(0);  
  fill(175);  
  rectMode(CENTER);  
  rect(mouseX, mouseY, 16, 16);  
}  
void keyPressed() {  
  background(255);  
}
```

```
// Example 3-6 from Learning Processing
```

```
void setup() {  
  // Set the size of the window  
  size(200, 200);  
  frameRate(30);  
}
```

```
void draw() {
  // Draw a white background
  background(255);
  // Set ellipses and rects to CENTER mode
  ellipseMode(CENTER);
  rectMode(CENTER);
  // Draw Zoog's body
  stroke(0);
  fill(175);
  rect(mouseX, mouseY, 20, 100);
  // Draw Zoog's head
  stroke(0);
  fill(255);
  ellipse(mouseX, mouseY-30, 60, 60);
  // Draw Zoog's eyes
  fill(mouseX, 0, mouseY);
  ellipse(mouseX-19, mouseY-30, 16, 32);
  ellipse(mouseX+19, mouseY-30, 16, 32);
  // Draw Zoog's legs
  stroke(0);
  line(mouseX-10, mouseY+50, pmouseX-10, pmouseY + 60);
  line(mouseX+10, mouseY+50, pmouseX+10, pmouseY + 60);
}
```



```
void mousePressed() {  
    println("Take me to your leader!");  
}
```

Summary

- Summary/Review
- coordinate system
- basic drawing commands and their parameters (rect, line, ellipse, background, stroke, fill)
- color model - RGB + alpha
- Processing IDE - entering/saving/running
- top to bottom statement execution - order matters
- function call syntax (e.g. `rect(10,20,30,40);`)
- `println()` for debugging
- comments
- `setup` & `draw`
- `mouseX`, `pmouseY`
- Did I leave off something important?