

These questions similar to those that might appear on a CMPT 166 midterm or final.

If-statements

1. (5 marks) Assume that `a` and `b` are both variables of type `float` that have already been assigned values (but you don't know what those values are). For each of the following questions, **write a boolean expression in the box** that makes the if-statement do what is requested.

- a) Draws a circle just when `a` and `b` have the same value.

```
if (  ) {  
    rect(a, b, 100, 10);  
}
```

- b) Draws a circle just when `a` and `b` have *different* values.

```
if (  ) {  
    rect(a, b, 100, 10);  
}
```

- c) Draws a circle just when `a` is one more than `b`.

```
if (  ) {  
    rect(a, b, 100, 10);  
}
```

- d) Draws a circle just when `a` is 2, and `b` is greater than `a`.

```
if (  ) {  
    rect(a, b, 100, 10);  
}
```

e) Draws a circle just when a is 7 or b is 5.

```
if ( a == 7 || b == 5 ) {  
    ellipse(250, 250, 100, 100);  
}
```

2. (5 marks) In the following questions, assume that x is 3 and y is 4. For each question, write in the box the word that gets printed (either "frog" or "tiger").

a)

```
if (x == 3 && y != 4) {  
    print("tiger");  
} else {  
    print("frog");  
}
```

frog

b)

```
if (x <= 3 || y != 4) {  
    print("tiger");  
} else {  
    print("frog");  
}
```

tiger

c)

```
if (!(x < 3 && y > 4)) {  
    print("tiger");  
} else {  
    print("frog");  
}
```

tiger

d)

```
if (!(x != y)) {  
    print("tiger");  
} else {  
    print("frog");  
}
```

frog

e)

```
if (!(x < y)) {  
    print("tiger");  
} else {  
    print("frog");  
}
```

tiger

Color Mapping

(5 marks) Suppose the screen is 400-by-400 pixels. Write a call to Processing's map function that maps mouseX to the range [100, 300].

Solution

```
map(mouseX, 0, 399, 100, 300)
```

Processing Flow Chart

Draw a flow chart that shows when Processing's `setup()` and `draw()` functions are called. Draw it as neatly as possible, and be sure that all the arrows and boxes are clear.

Solution