CS 105
Introduction to Computer Programming in JavaScript
Midterm Exam Review

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Schedule

- Lecture Class Tuesday, Oct 3:
    Questions on Text Adventure Lab
    Review for Midterm Exam

- Lecture Class Thursday, Oct 5:

- Lab Class this week: Review for Midterm Exam.

- **Midterm Exam**: Tuesday, Oct 10 (regular lecture time/room)

- Lab Class (Oct 10 - 11): Cancelled.

- Fall Break: Oct 12 - 15 (Thursday through Sunday)

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Exam Format

- Short answer.
- Write on test
- May bring one page *handwritten* notes (back and front).
- May bring English/other language dictionary (made of paper) NO electronic dictionaries (see me if this is a problem).
- *No calculators, no computers, no phones!*
- May bring scrap paper. If you use scrap paper, you may or may not turn it in as you see fit.

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Quiz: What is displayed on the Canvas?

```
fill(0,0,0);
var i = 0;
var x = 0;

while (i < 5)
{
  i += 1;
  x += i;
}
text(x,10,10);
```

Shorthand for:
`i = i + 1;`

Shorthand for:
`x = x + i;`

a) 1
b) 5
c) 10
d) 15
e) 21

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Solution to While Loop Quiz

```
fill(0,0,0);
var i = 0;
var x = 0;

while (i < 5)
{
    i += 1;
    x += i;

    var msg = i + ", " + x;
    text(msg, 10,50*i);


}
text(x,10,300);
```

To help figure out what is going on, add output inside loop.

set to 50*5 so it displays below debug output.

```
1,1

2,3

3,6

4,10

5,15

x=15
```

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Quiz: What is displayed on the Canvas?

```
fill(0,0,0);
var i = 0;
var x = 0;

while (i < 4)
{
    i += 1;
    x += i*2;
}
text(x,10,10);
```

```
a) 10
b) 20
c) 30
d) 35
e) 40
```

```
i= 0 + 1    = 1
x= 0 + 1*2 = 2

i= 1 + 1    = 2
x= 2 + 2*2 = 6

i= 2 + 1    = 3
x= 6 + 3*2 =12

i= 3 + 1    = 4
x=12 + 4*2 =20
```

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Quiz: `if` Logic

Which if statement can NEVER be true?

```
a) if (a> 80 || b> 80 || a+b>150)
b) if (a> 80 && a<150 &&   b>150)
c) if (a>150 && a< 80 &&   b> 80)
d) if (a> 80 && b> 80 &&   a<170 && b<170)
e) if (a>100 && b>100 &&   a<200 && b<200)
```

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Logic

Three computer scientists walk into a Keva Juice franchise.

The sever asks "*Do all of you want a drink*"?

The first says, "*I don't know*".

The second says, "*I don't know*".

The third says, "*Yes!*"

Why does the third **know** his or her answer is correct?

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Quiz: Logic

A programmer's wife gives birth and the doctor immediately hands the newborn to the dad. His wife asks impatiently: "So, is it a boy or a girl"?

Which is most likely to be the correct answer?

a) A boy.

b) A girl.

c) Yes.

d) No.

e) Both.

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Quiz: What is displayed on the Canvas?

```
1) fill(0, 0, 0);
2) text(15 % 2, 10, 10);
```
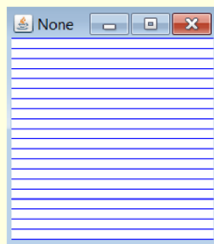
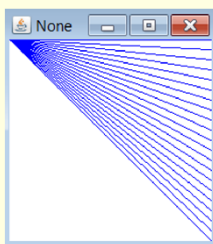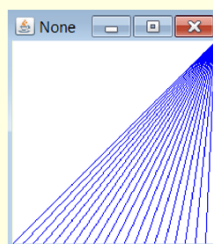| (a)	(b)	(c)	(d)	(e)
1	2	7	7.5	8

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Quiz: Which Image is Drawn?

```
//Assume the canvas is 200x200 pixels
var i = 0;
while (i<=200)
{ line(0, i, 200, i);  //x₁,y₁,x₂,y₂
  i += 10;
}
```
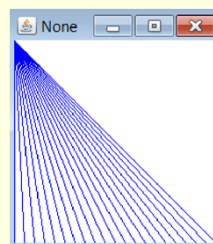
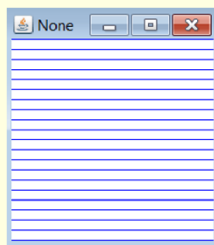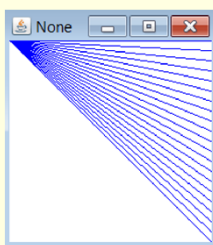$//x_1,y_1,x_2,y_2$
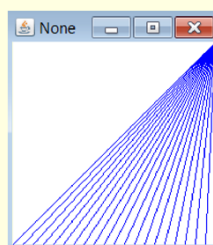

a)   b)   c)   d)

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Quiz: Which Image is Drawn?

```
//Assume the canvas is 200x200 pixels
var i = 0;
while (i<=200)
{ line(i, 200, 200, 0);  //x₁,y₁,x₂,y₂
  i += 10;
}
```

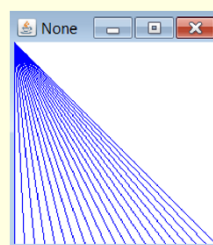$//x_1,y_1,x_2,y_2$

a)   b)   c)   d)

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Course Grading

Each student's final course grade is a *weighted average* of four component grades (formula is in the syllabus):

- 50%   Mini (lab) Projects (lowest lab is dropped).

- 10%   Quizzes (in class i-clicker).

- 20%   Exams (Midterm and Final).

- 20%   Final *Group* Project. ("Group" being defined as a number > 1)
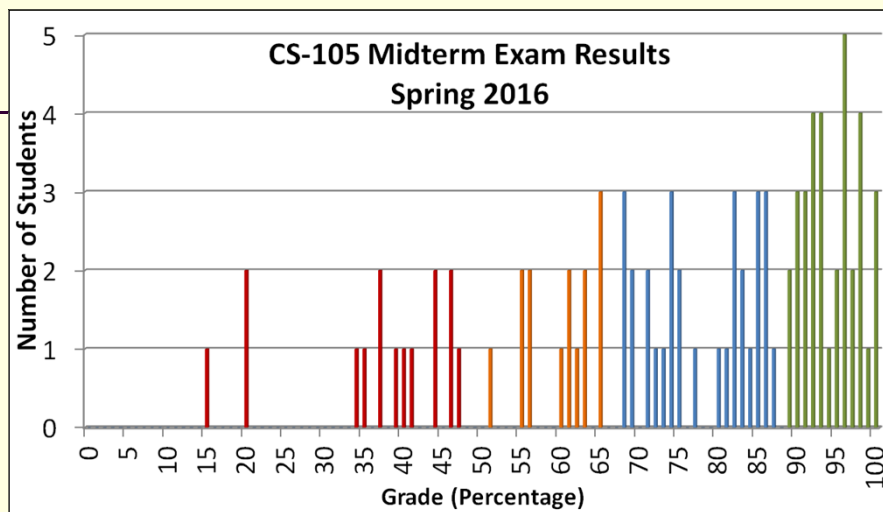
Note: When calculating your course grade, **DO NOT add mini project points** to **quiz points** or to **exam points.**

Doing so is like saying:
"4 yuan + 6 pesos equals 10".

13 Thus, Blackboard Learn shows the INCORRECT course grade!

CS-105 Midterm Exam Results Spring 2016

Number of students who took the exam: 92
Mean: 75.14
Median: 82

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Quiz: alert

In JavaScript, an alert is:

a) A possible security issue.

b) A box that pops up to give the user a message.

c) An error that occurs when the user attempts to access protected data.

d) An electronic signal sent to spyware that reports the user's browsing history.

e) A small creature that guards the computer from bugs.

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What Does `else if` Mean?

From Question #2 (over half of class got this wrong):

```
if (divya > ben)
{
   ben = ben + 7;
}
else if (divya > 10)
{
   divya = divya - 5;
}
```

≠

```
if (divya > ben)
{
   ben = ben + 7;
}
if (divya > 10)
{
   divya = divya - 5;
}
```

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Only an Assignment Changes Variable

```
stroke(0,0,0);
var i = 0;
while (i<=180)
{
    line(100, i,    100, i+10); //x1,y1,x2,y2
    line(110, i,    110, i+10);
    line(120, i,    120, i+10);
    line(100, i+10, 120, i+10);
    i += 20;
}
```

These are NOT assignment Statements.
These expressions DO NOT change the value of `i`.

This IS an assignment Statement.
It CHANGES the value of `i`.

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Quiz: Variable Names

In JavaScript, which of the following is NOT a rule for creating a legal variable name?:

a) A variable name can't contain any spaces.

b) A variable name can contain only letters, numbers, dollar signs, and underscores.

c) A variable name cannot be a JavaScript reserved word.

d) A variable name cannot use camelCase.

e) A variable name cannot be a number or start with a number.

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Quiz: While Loop

How many times does the JavaScript While Loop below execute?

```javascript
var rabbitsToAdd = 5;
while (rabbitsToAdd > 0)
{
    var x = Math.floor(random(gridWidth));
    var y = Math.floor(random(gridHeight));
    grid[x][y].hasRabbit = true;
}
```

    a) Once
    b) Four times
    c) Five times
    d) Six times
    e) Many, many, many times

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