Closed-book exam (40%)

Question #1 (2%)

```
int a = 20;

int b = 10;

int c = 5;

b = c;

a = a + b - c;
```

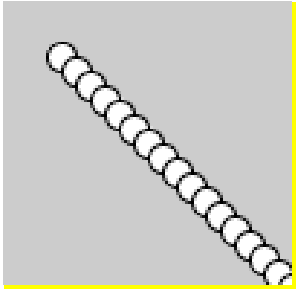
In the code fragment above, what will be the final values of the three variables?

- ***a is 20, b is 5, c is 5***
- a is 15, b is 10 c is 10
- a is 15, b is 10, c is 5
- a is 20, b is 10, c is 5

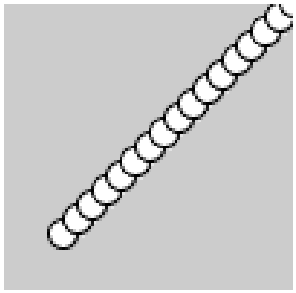
Question #2 (5%)

```
float x=20;
float y=20;

void ofApp::setup() { ofSetBackgroundAuto(false); }

void ofApp::draw()
{
 ofFill();
 ofSetColor(255);
 ofDrawEllipse(x, y, 10, 10);  //one of ofDrawEllipse accepted parameters are : x, y, width, height
  ofNoFill();
  ofSetColor(0);
  ofDrawEllipse(x, y, 10, 10);

   x = x+5;
   y = x;
}
```

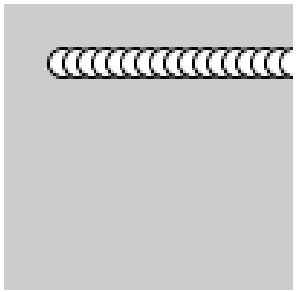
what animation will we see when running the code above



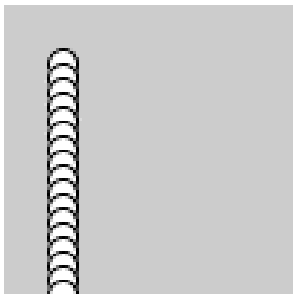
A diagonal line of circles from top left to bottom right



A diagonal line of circles from bottom left to top right



A horizontal line of balls



A vertical line of balls

Question #3 (1%)

```
if ( x > y   &&   x < (y+30) )
```

the if statement above is true only when :

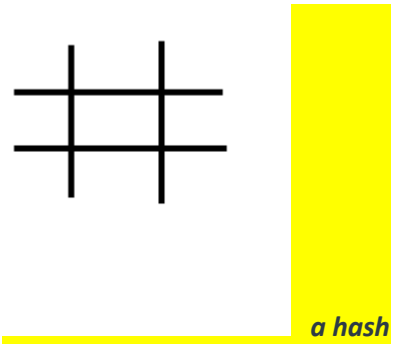
x contains some value between y AND y+30
x contains any value less than y+30
x contains some value less than y AND greater than y+30
x contains some value less than y OR greater than y+30

Question #4 (5%)

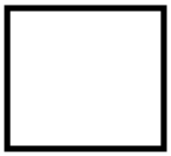
```
float x=20;
float y = 20;
float size = 66;
float offset = size/3;

ofSetColor ( 0 );
ofDrawLine ( x, y,   x+size, y );    //one of the ofDrawLine accepted parameters : x1, y1,  x2, y2
```

```
ofDrawLine ( x, y+offset,   x+size, y+offset );
ofDrawLine ( x+offset, y-offset,   x+offset, y+(offset*2) );
ofDrawLine ( x+(offset*2), y-offset,   x+(offset*2), y+(offset*2) );
```

Which description best describes the drawing produced by the code fragment above



a hash



a square

a triangle

a rectangle

Question #5 (1%)

```
float result=0;

float function1(float x, float y)
{
 return x * y;
}
```

```
void ofApp::setup()
{
  result = function1(10,2);
}
```

what value will **result** have when running the code above?

20

0

10

2

Question #6 (5%)

```
 void drawFig(int x, int y, int diam)
{
  ofDrawEllipse(x, y, diam, diam);  //one of ofDrawEllipse accepted parameters : x, y, width, height
}

void ofApp::draw()

{

  for(int i=10; i<150; i=i+30)

 {
    drawFig(50, i, 20);

  }
}
```

Which of the following best describes the image produced by the code above**?**

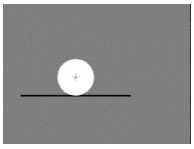
5 circles in the same position
a line of 3 circles in a horizontal line left to right,
5 circles of the same size in a vertical line top to bottom
30 circles of the same size

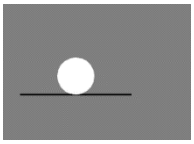
Question #7 (5%)

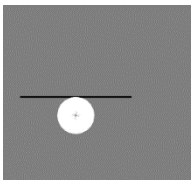
```
void myProc()
{
 ofSetColor(255);
 ofDrawEllipse(50,50,10,10);  //one of ofDrawEllipse accepted parameters: x, y, width, height
}


void ofApp::setup()
{
```

```
 ofSetColor(0);
 ofDrawLine(25,55, 75,55); //one of ofDrawLine accepted parameters : x1, y2, x2, y2
 myProc();
 ofSetColor(255);
 ofDrawCircle (50,50,5); //one of ofDrawCircle accepted parameters : x,y,radius

}
```

The code above will cause which of the following to appear on the screen?

 A circle, dot in the centre, above a line

 A circle above a line

 A circle, dot in the centre, below a line

 A dot above a line

Question #8 (5%)

```
float x = 50;

float y = 50;

float diam = 10;

void ofApp::setup() {}  //event called once at the start

void ofApp::draw() //event called repeatedly 60 times a second

{

 ofBackground(0, 0, 0);
 ofDrawEllipse(x, y, diam, diam);
                  //one of ofDrawEllipse accepted parameters are : x, y, width, height

 diam = diam+1;

 if (diam > 100)
```

```
 {
   diam = 10;
 }
}
```

Which of the following statements best describes the animation we will see on the screen?

a circle starting small and expanding , repeating over and over
a circle moving left
a circle moving right
a circle unchanging

Question #9 (1%)

```
if (x < 10)
{
  y = 100;
}
else if (x < 20)
{
  y = 200;
}
else
{
 y = 100;
}
```

In the code fragment above, which value of **x** (below) would cause the variable **y** to be assigned as **200**?

20
40
5
15

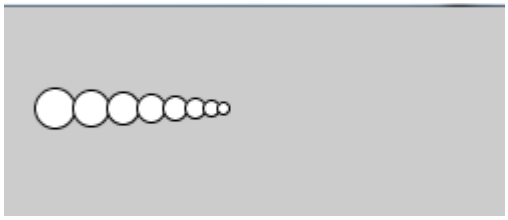
Question #10 (10%)

You are still in closed-book exam mode, and you are to write a C++ program to draw a snake (similar to the image below), consisting of **8 circles which decrease a little in size from left to right**.
Example: start at position (100, 100) with radius size of 10, decreased by radius by 1

You can use ***ofDrawCircle(x , y, radius)*** for this purpose

For full marks your code should make use of procedure(s) and parameter(s) as well as other applicable programming techniques.

Hard-code 8 different size of circles will *not* be award any marks.



You have been given the code below as a starting point:

```
void snake()
{


}
void ofApp::draw()
{
   snake();
}
```

===

Suggested answer as below, but similar to the following will be fine:

As long as the answer contains, iterative number to increase position-x and reduce radius, and these two parameters are passed to snake method

```
void snake(float x, float radius)  //2%
{
        ofDrawCircle(100 + x, 250, radius);  //2%
}

void ofApp::draw()
{
        float deltaX = 0;
        for (int i =0; i<8; i++)          //1%
        {
                float radius = 10 - i;        //2%
                deltaX = deltaX + radius * 2;  //2%
                snake(deltaX, radius); // 2%   //1%
        }
}
```