(1)(10 points) For-Loops
What is the output of the following code? Put your answer in the box on the right:

```java
for (int i = 20 ; i < 40 ; i = i + 6)
    println(i) ;
println("spacer line") ;
for (int i = 0 ; i <= 6 ; i = i + 1)
    for (int k = i+2 ; k < 6 ; k = k + 1)
        println(i + " " + k) ;
```

(10 points) Simple Arrays
What is the output of this code? Put your answer in the box on the right.

```java
int [] nums ;
void setup()
{
    nums = new int[6] ;
    for (int i = 0 ; i < nums.length ; i++)
        nums[i] = 2*i ;
    for (int c = 0 ; c < nums.length ; c++)
        println(nums[c]) ;
}
```
(3)(20 points) Arrays of Objects
Assume the MovingRectangle class definition below. Give the complete code (you do not need to re-write the MovingRectangle class) for a sketch that will create 20 MovingRectangle objects and have them move around. Your code must include a setup( ) and draw( ) functions as well as variable/array declarations. You MUST use an array, not 20 variables. Each moving rectangle should start at a random location on the screen and have a velX and velY initialized to 2 and 3 respectively.

```java
class MovingRect
{
    int x, y ;
    int velX, velY ;

    MovingRect(int inX, int inY, int inVelX, int inVelY)
    {
        x = inX ;
        y = inY ;
        velX = inVelX ;
        velY = inVelY ;
    }

    void drawIt()
    {
        rect(x,y,30,30) ;
    }

    void updateLocation()
    {
        x += velX ;
        y += velY ;
        if ((x > width) || (x < 0) )
            velX *= -1 ;
        if ((y > height) || (y < 0) )
            velY *= -1 ;
    }
}
```
(4)(15 points) Class definition
Write a class definition for a ColoredRectangle class.

class ColoredRect
{
  // your stuff here
}

Your class definition should be sufficient that the following code will work using it, and, that a bright red rectangle will appear at location 100,100 and then move slowly to the right getting darker and darker as it moves.
class ColoredRect cr1;
int ColorValue;
void setup()
{
  ColorValue = 255;
  cr1 = new ColoredRect( 100, 100, 20, 20 ) ; // x, y, r-width, r-height
cr1.setColor(ColorValue,0,0) ;
}
void draw()
{
  int tempX ;
tempX = cr1.getX( ) ;
cr1.setX( tempX + 1 ) ;
ColorValue = ColorValue - 1 ;
cr1.setColor( ColorValue, 0, 0 ) ;
cr1.drawIt() ;
}