Please answer the following questions:

Q1: Write applet codes for the following graphs.

(a) 

(b) 

(c)

Q2: Write an applet code for the following train.

Q3: Build a ray tracer. Your ray tracer will be able to handle surfaces with lighting and shadows. Write an applet code for this process.

Good luck. Dr. Abdelhameed Fawzy (2013)
Attempt the following problems:

1) Construct a class that has two instance variables A, B which will be set in the class constructor. The class has methods to calculate:
   a. The sum.
   b. The difference.
   c. The product.
   d. The average.
   e. The maximum.
   f. The minimum.

Create an object of that class with values 10, 20. Then use it to print their maximum, minimum, sum, product, difference, average values.

2) Construct a class that prints the grid shape with different sizes as shown. The class accepts two variables R (the number of rows) and C (the number of columns), then print the shape using Draw method.

Write a Java program that asks the user for C & R then draws the corresponding shape.

3) Build a ray tracer. Your ray tracer will be able to handle surfaces with lighting and shadows. Write an applet code for this process.
4) Write a java program to construct the shown clock. As shown in figure: rs=45, rm=40, rc=30, the clock has yellow body, the second pointer is black, the minutes pointer second and the clock pointer is blue. At each quarter of the clock, there is a black square as shown in figure.

(15 Marks)

5) Write a java program that animates a circle (diameter=50) to hit the middle of the four edges of the applet (250x250), changing its color between (red, blue, green and yellow) after each hit. The circle starts from the left side and moves in clockwise direction. Another circle (diameter=50) located at the center of the applet, it's divided into 12 slice with colors (red, yellow, green, blue, cyan, dark gray, magenta, gray, orange, white, light gray, pink). It rotates in counter clock wise direction.

(15 Marks)

6) Write an applet code for the following graph. Then animate the boat up and down, and animate the clouds from right to left.

(15 Marks)

7) Write an applet code for the following graph. Then animate the car from right to left.

(15 Marks)

Good Luck.