**1.** Why do we use graphics?

Graphics are commonly used to represent different data (e.g. scientific data).

**2.** When do we try not to use graphics?

When we are able to use only text I/O.

**3.** Why is graphics interesting for a programmer?

a.) It provides examples of Object-Oriented Programming.

b.) Graphics is a fertile source of interesting code and design techniques.

c.) Finally, graphics are fun.

**4.** What is a window?

Windows is a rectangular region of a screen that is devoted to some specific purpose and controlled by a program.

**5.** In which namespace do we keep our graphics interface classes (our graphics library)?

Graph\_lib

**6.** What header files do you need to do basic graphics using our graphics library?

Simple\_window.h

Graph.h

GUI.h

Punct.h

Window.h

fltk.h

**7.** What is the simplest window to use?

An object of class Simple\_window

**8.** What is the minimal window?

An object of class Window

**9.** What’s a window label?

It’s a title of a particualr window

**10.** How do you label a window?

With the help of Simple\_window’s member function set\_label(string);

**11.** How do screen coordinates work? Window coordinates? Mathematical coordinates?

The upper-left point of screen is a beginning of two coordinate axis. X is a horizontal axis and Y is a vertical one.

To define a point on screen we need to specify its position (coordinates) on x and y axes. When we define the point in window, the upper-left pixel of window is used as the beginning of two axes.

The X axis increases towards the right and Y axis increases towards the bottom.

**12.** What are examples of simple “shapes” that we can display?

Polygon (e.g Triangle, Rectangle), Circle, Ellipse, Line(s), Text, Image, Axis

**13.** What command attaches a shape to a window?

Simple\_window’s member function attach()

**14.** Which basic shape would you use to draw a hexagon?

Polygon

**15.** How do you write text somewhere in a window?

Simple\_windows win {Point{x,y}, 600, 400 };

Text t {Point{x,y}, string};

win.attach(t);

**16.** How would you put a photo of your best friend in a window (using a program you wrote yourself)?

Simple\_windows win {Point{x,y}, 600, 400 };

Image ii {Point{x,y}, “\*.jpg”};

win.attach(ii);

win.set\_label(“My best friend”);

win.wait\_for\_button();

**17.** You made a Window object, but nothing appears on your screen. What are some possible reasons for that?

We probably forgot to use wait\_for\_button() function that gives control of the window to GUI system. This function makes it possible to look at the window before it closes, terminate the program with the click on button and open the next window.

**18.** You have made a shape, but it doesn’t appear in the window. What are some possible reasons for that?

We forgot to attach the object to window with the Simple\_window’s member function attach();