Handout 21

More graphics

21.1 Strings in graphics

```
#include <FPT.h>
int main()
{
  double q;
  double point[2];
  char words[100]; // will hold 99 characters for printing to screen
  int dots;
  G_init_graphics (500, 500) ;
  srand48(time(NULL));

  for(dots = 1; dots <100; dots++)
  {
    // pause before each dot
    q = G_wait_key() ;
    // random dot
    G_rgb(drand48(),drand48(),drand48());
    G_fill_circle (500*drand48(), 500*drand48(), 20*drand48()) ;
    // make gray rectangle for words to sit on
    G_rgb(.9,.9,.9);
    G_fill_rectangle (0,480,120,20);
    G_rgb(0,0,0);
    // create and print the words we want
    sprintf(words, " dots: %d/99", dots);
    G_draw_string(words, 0,480);
  }
  // close graphics after mouse is clicked
  G_wait_click(point) ;
  G_close() ;
}
```

21.2 Graphics project

Complete a "graphics project" that uses at least three of the following concepts in a meaningful way:

- loops,
- if/else statements,
- random numbers,
- strings,
- functions.

You can reconstruct one of my programs (and add your own "special touch") or you can create your own program.

Paul's ideas:

- Visualize the approximation of π using areas. What other approximations can you visualize?
- Visualize one of the sorting algorithms.
- Visualize some of the random walk assignments. How much data can you show at once? Maybe show the walks and also a histogram of the distance?