Computer Graphics

Homework 4

1.

2.

3.

4.

1-0, 1-0, 1-0> = <1, 1, 1>

5.

6. (0, 4, 6)

p = (0,4,6); θ = 60; a = <0,2,3>;

|a| = √(0+4+9) = √(13)

7. No. Since its volume is the product of its sides multiplied by its determinant. The sides' lengths don't change when rotated. The determinant stays 1.

8. An infinite loop entered by the last executed line in your program, which waits for events such as user inputs and state changes. For any such input for which an event handler is defined, the event loop calls the event handler, which processes the event and then returns to the event loop.

9. Fewer subroutine calls, less memory, the vertices might be cached in the GPU, reducing data on the graphics bus.

10. gl.viewport()

11. It may be faster and use less graphics memory not to use it. (That reason is becoming less important as GPUs get bigger and faster.) Being able to turn it on and off can be useful, see ballAndToursWithShadow

12.

13.

14.