**CSCI 4250 Computer Graphics Homework 3 - Kaleb Askren**

1a. ||a|| = 14^(1/2) = 3.741657

1b. a/||a|| = (3/3.74, -2/3.74, 1/3.74)

2a. 17

2b. 17/21

2c. (2,2,-12)

3a. r(t) = 18 – 4t

3b. (2.67,7.32)

4. <0,2,2> or <0,-2,-2>

5a1. T0 = 1 0 0 4 5a2. R = cos(π/4) -sin(π/4) 0 0

0 1 0 3 sin π/4) -cos π/4) 0 0

0 0 1 0 0 0 1 0

0 0 0 1 0 0 0 1

5a3. T1 = 1 0 0 -4 5a4. S = 2 0 0 0

0 1 0 -3 0 4 0 0

0 0 1 0 0 0 1 0

0 0 0 1 0 0 0 1

5b. P` = (11, 8, 7)

5c. P’ = (1.4135, 1.4135, 7)

5d. S \* T0 = 2 0 0 8

0 4 0 12

0 0 1 0

0 0 0 1