MATH 243: SECTION 13.1 GROUPWORK

(1) Consider the vector function

$$\vec{r}(t) = \langle e^{2t}, \frac{t}{2\pi - t}, \frac{\sin t}{t^2} \rangle.$$

Compute $\lim_{t \to \pi} \vec{r}(t)$.

(2) Show that $\vec{r}(t)$ from the previous problem is continous at $t = 0$.

(3) Find a vector function which represents the line which passes through the points $(0, 1, 0)$ and $(2, 0, 1)$. [Hint: assume the line is at $(0, 1, 0)$ at time $t = 0$ and at $(2, 0, 1)$ at time $t = 1$.]