

Homework6

1. Find an equation in rectangular coordinates for the surface represented by spherical equation, and sketch its graph.

$$\phi = \frac{\pi}{6}$$

2. Find $r(t)$ that satisfies the initial conditions.

$$r'(t) = 3t^2\mathbf{j} + 6\sqrt{t}\mathbf{k}, \quad r(0) = \mathbf{i} + 2\mathbf{j}$$

3. Find the limit (if it exists).

$$\lim_{x \rightarrow \infty} (e^{-t}\mathbf{i} + \frac{1}{t}\mathbf{j} + t^{\frac{1}{t}}\mathbf{k})$$