

Hint for Exercise 2.29

October 20, 2003

$$\frac{d}{dt}\|x(t)\| = \frac{d}{dt}\langle x(t), x(t) \rangle^{\frac{1}{2}} = \frac{1}{2}\langle x(t), x(t) \rangle^{-\frac{1}{2}} \cdot 2\langle x(t), \dot{x}(t) \rangle = \frac{\langle x(t), Ax(t) \rangle}{\|x(t)\|}.$$