1. The graphs of the velocity of two particles are shown, where $t$ is measured in seconds. When are the particles slowing down and when are they speeding up?

2. The volume of water in a leaky bucket at $t$ minutes is given by the formula $V(t)=5(1-t / 30)^{2}$ when $0 \leq t \leq 30$. Find the rate at which water is leaking out after 15 minutes. When is the water leaking out the fastest? The slowest?
3. An economist predicts that the buying power $B(t)$ of a dollar $t$ years from now will decrease according to the formula $B(t)=(0.96)^{t}$. At what rate will the buying power be decreasing 3 years from now?
4. The cost for a company manage $x$ apartment units is given by the formula $C(x)=80 x+\frac{5,000}{x}+12,000$.
(a) Find the marginal cost
(b) Find $C^{\prime}(10)$ and interpret its meaning
(c) Compare $C^{\prime}(10)$ with the cost of managing the 11th apartment unit
5. If $C(x)$ is the cost to produce $x$ units of a product, the average cost is given by the formula $A(x)=\frac{C(x)}{x}$. Find $A^{\prime}(x)$ and interpret its meaning. What is the significance of the relationship between $A^{\prime}(x)$ and $C^{\prime}(x)$.
