Unit price x
Unit cost c, Fixed cost F
Demanding function $D(x)$, Revenue function $R(x)$, Cost function $C(x)$, Profit function $P(x)$.

- $R(x) = xD(x)$
- $C(x) = cD(x) + F$
- $P(x) = R(x) - C(x)$

Example 1. Blu-ray Sales (Textbook3.6 HW 23) WebAssign 2

A store has determined that the number of Blu-ray movies sold monthly is approximately

$$n(x) = 6250(0.929^x) \quad \text{movies}$$

where x is the average price in dollars.
(a). Write a model for revenue as a function of price.

$R(x) = 6250(0.929^x) \cdot x$ dollars

(b). If each movie costs the store \$10.00, write a model for profit as a function of price.

$P(x) = 6250(0.929^x)(x-10)$ dollars

(c). Complete the table

$R'(x) = 6250(\ln 0.929)(0.929^x)x + 6250(0.929^x)$

Rates of Change of Revenue and Profit

Price	Rate of change of revenue	Rate of change of profit
\$ 13	102.198	1869.198
\$ 14	-69.212	1572.331
\$ 20	-677.629	377.600
\$ 21	-727.548	252.760
\$ 22	-766.963	143.743

$P'(x) = 6250\ln(0.929)0.929^x(x+10) + 6250(0.929^x)$

dollars/dollar

(d). What does the table indicate about the rate of change in revenue and the rate of chnge in profit at the same price?

Increasing
Decreasing