

$$17. \frac{dP}{dx} = -12x + 300$$

$$P = \int \frac{dP}{dx}$$

$$= \int (-12x + 300) dx$$

$$P = -\frac{12x^2}{2} + 300x + C \quad *$$

$$5000 = -6(10)^2 + 300(10) + C$$

$$5000 = -600 + 3000 + C$$

$$2000 = -600 + C$$

$$2600 = C$$

$$P(10) = 5000$$

\downarrow $x=10$ \downarrow $P=5000$

$$P(x) = -6x^2 + 300x + 2600$$