

- [11] 3. Given the price-demand equation

$$.03x + 4p = 30$$

- (A) Express the demand x as a function of price p .
- (B) Express the revenue R as a function of the price p .
- (C) Find the elasticity of demand, $E(p)$.

- [11] 4. A small machine shop manufactures drill bits used in the petroleum industry. The shop manager estimates that the total daily cost (in dollars) of producing x bits is

$$C(x) = 1,000 + 25x - 0.1x^2$$

- (A) Find $\bar{C}(x)$ and $\bar{C}'(x)$.
- (B) Find $\bar{C}(10)$ and $\bar{C}'(10)$, and interpret these quantities.
- (C) Use the results in part (B) to estimate the average cost per bit at a production level of 11 bits per day.

- [10] 5. Find dy for $y = f(x) = \sqrt{x} + 3$. Evaluate dy for

- (A) $x = 4$ and $dx = 0.1$.
- (B) $x = 9$ and $dx = 0.12$.

- [12] 6. Compute the following:

(a) $\int e^{-3x} dx$

(b) $\int (4x^3 - 7x^6) dx$

(c) $\int (x + 9)^{-8} dx$

(d) $\int (ex^5 - x^2) dx$

(e) $\int \frac{x^2}{7 - x^3} dx$

(f) $\int_3^4 \frac{1}{x - 2} dx$