(1) $y = 2x + 4$.

(2) $y = -x + 5$.

(3) (a) Maximum.
    (b) The maximum is 7 when $x = 1$.

(4) They should invest $50,000 at each rate.

(5) (a) $C = 25q + 1500$.
    (b) $R = 50q$.
    (c) $P = 25q - 1500$.
    (d) $q = 60$.

(6) (a) $C = q^2 + 50q + 4200$.
    (b) $R = 250q - q^2$.
    (c) $P = -2q^2 + 200q - 4200$.
    (d) $200$.
    (e) $q = 30$ and $q = 70$.

(7) (a) 10 units are supplied, and 20 units are demanded.
    (b) The price is likely to increase.
    (c) $q = 14$ and $p = 52$.

(8) (a) 54 units are supplied, and 2 units are demanded.
    (b) The price is likely to decrease.
    (c) $q = 4$ and $p = 27$. 