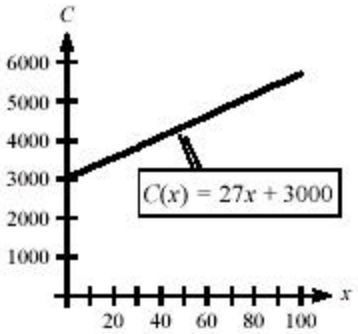
Assignment #11

HW # 11 1.6 p 132 # 2, 12, 16, 18, 27, 28, 42, 43

2. **a.** $P(x) = R(x) - C(x)$
$= 215x - (105x + 1650)$
$= 110x - 1650$

b. $P(50) = 110(50) - 1650 = \$3850$

12. $C = 27x + b$, use the fact that (50, 4350) is on the line to solve for b, the fixed costs.
$4350 = 27(50) + b$
$b = 3000$
The cost function is $C(x) = 27x + 3000$.



16. $R(x) = 81.50x$, $C(x) = 63x + 1850$
At the break-even point, $R(x) = C(x)$, so
$81.50x = 63x + 1850$
$18.50x = 1850$
$x = 100$ units

18. $R(x) = 89x$, $C(x) = 1400 + 75x$
At the break-even point, $R(x) = C(x)$, so
$89x = 1400 + 75x$
$14x = 1400$
$x = 100$ sets of recaps

27. If price increases, then the demand for th product decreases.

28. If the price increases, then the supply wil increase.

42. At the market equilibrium point,
Demand = Supply, so
$-2q + 320 = 8q + 2$
$318 = 10q$
$31.8 = q$
$p = -2q + 320$
$p = -2(31.8) + 320 = \$256.40$

43. $-\frac{1}{2}q + 28 = \frac{1}{3}q + \frac{34}{3}$ Required condition.
$-3q + 168 = 2q + 68$ Multiply both sides by 6 to simplify.
$-5q = -100$
$q = 20$

Substituting into one of the original equations gives $p = -\frac{1}{2}(20) + 28 = 18$.

Thus, the equilibrium point is $(q, p) = (20, 18)$.