

HOMEWORK # 5 **ANSWERS**

- (a) First of all, since for every group the marginal cost of one extra unit of education exceeds the marginal benefit (in terms of increased salary), everybody will only consider only $y = 0$, $y = a$ and $y = b$. The inequalities are as follows.

For Group I:

$$(I.1) \quad 18 > 30 + 3a - 12a, \text{ that is, } a > \frac{4}{3}$$

$$(I.2) \quad 18 > 40 + 2b - 12b, \text{ that is, } b > \frac{11}{5}$$

For Group II:

$$(II.1) \quad 30 + 3a - 6a > 18, \text{ that is, } a < 4$$

$$(II.2) \quad 30 + 3a - 6a > 40 + 2b - 6b, \text{ that is, } b > \frac{5}{2} + \frac{3}{4}a$$

For Group III:

$$(III.1) \quad 40 + 2b - 3b > 18, \text{ that is, } b < 22$$

$$(III.2) \quad 40 + 2b - 3b > 30 + 3a - 3a, \text{ that is, } b < 10$$

- (b) When $a = 3$ and $b = 4$, inequality (II.2) is violated. Thus Group II individuals would be better off pretending to be Group III by choosing $y = 4$.
- (c) Yes, when $a = 3.5$ and $b = 6$, all the above inequalities are satisfied.