

**Economics 103**

**PRACTICE EXAM for the THIRD MIDTERM: ANSWERS**

**1.**

Owner of printer with	Requires minimum price of
$\mu = 1000$	\$2,750
$\mu = 2000$	\$2,500
$\mu = 3000$	\$2,250
$\mu = 4000$	\$2,000
$\mu = 5000$	\$1,750
$\mu = 6000$	\$1,500

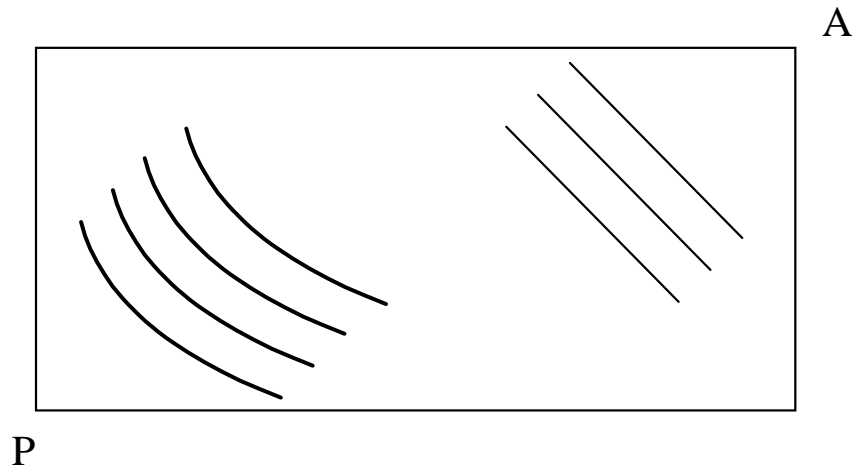
Thus:

If you offer a price of	Number of phone-calls you will receive	Average quality of printers offered for sale to you
\$1000	0	N/A
\$1800	$\frac{3}{12} 240 = 60$	$\frac{2}{3} 5000 + \frac{1}{3} 6000 = 5333$
\$2100	$\frac{4}{12} 240 = 80$	$\frac{1}{4} 4000 + \frac{2}{4} 5000 + \frac{1}{4} 6000 = 5000$
\$2600	$\frac{11}{12} 240 = 220$	$\frac{3}{11} 2000 + \frac{4}{11} 3000 + \frac{1}{11} 4000 + \frac{2}{11} 5000 + \frac{1}{11} 6000 = 3454$
\$2750	$\frac{12}{12} 240 = 240$	$\frac{1}{12} 1000 + \frac{3}{12} 2000 + \frac{4}{12} 3000 + \frac{1}{12} 4000 + \frac{2}{12} 5000 + \frac{1}{12} 6000 = 3250$

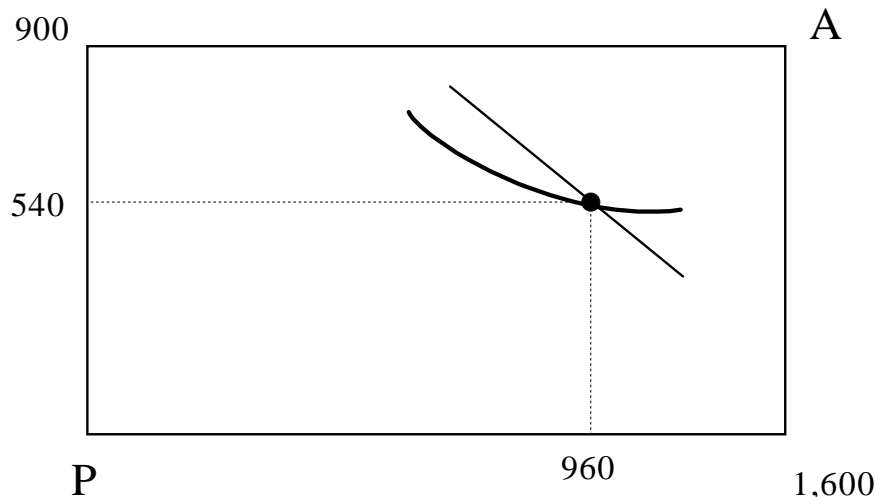
- 2.** Since Paul is risk-neutral and Meg is risk-averse, Pareto efficiency requires that all the risk be borne by Paul, hence Meg should be guaranteed a fixed wage. For the contract to be acceptable to Meg, it must guarantee her a utility of at least 1. A contract according to which Meg gets 1 for sure is Pareto efficient and acceptable to both, because Meg's utility is  $\sqrt{1} = 1$  and Paul's expected utility is

$$\frac{1}{4} (1 - 1) + \frac{1}{4} (2 - 1) + \frac{1}{4} (3 - 1) + \frac{1}{4} (4 - 1) = \frac{3}{2} > 1.$$

3. (a) The straight lines are indifference curves of Andrea and the curved lines are indifference curves of Peter.



(b)



(c) The contract is not Pareto efficient because Pareto efficiency requires Peter to receive a fixed payment (since he is the only one to be risk averse)

(d) Any contract where  $1,660 - w_1 = 900 - w_2$  (where  $w_1$  is Andrea's remuneration if the firm's profit is 1,600 and  $w_2$  is her remuneration if the firm's profit is 900).

(e) Contracts that are Pareto superior to  $S$  are the ones that lie between the two indifference curves. Thus Peter should get less than \$960 and Andrea more than \$640 when the firm's profits are \$1,600.

4. (a) 156. (b) 79. (c) 70 (only people in area N buy insurance). (d) 350 (only people in area N buy insurance).

5. 430.