

$$Q^D = Q^S$$

$$20,000 - 1,000P = -12,000 + 3,000P$$

$$20,000 + 12,000 - 1,000P = 3,000P$$

$$32,000 = 3,000P + 1,000P$$

$$4,000P = 32,000 \Rightarrow P = \frac{32,000}{4,000}$$

$$P = 8$$

~~Professor Galvez-Soriano (UH)~~

$$P^* = 8$$

$$Q^D = 20,000 - 1,000P$$

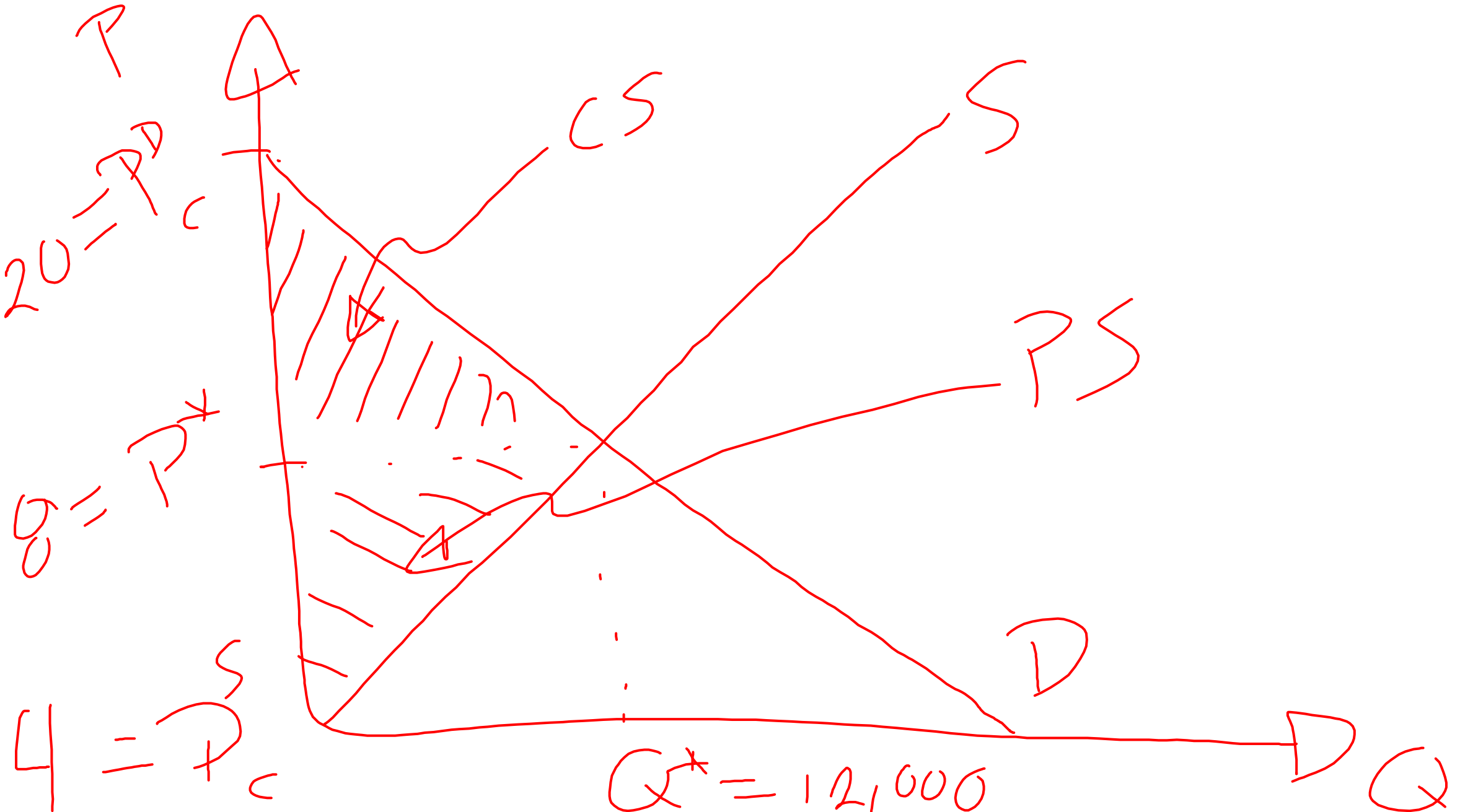
$$Q^* = 20,000 - 1,000(8) = 20,000 - 8,000$$

$$Q^* = 12,000$$

$$Q^S = -12,000 + 3,000P = -12,000 + 3,000(8)$$

$$Q^* = -12,000 + 24,000 = 12,000$$

$$Q^* = 12,000$$



$$Q^D = 20,000 - 1,000P$$

$$Q = 20,000 - 1,000P$$

$$P_c^D = 20$$

$$Q^S = -12,000 + 3,000P$$

$$Q = -12,000 + 3,000P \Rightarrow$$

$$P_c^S = 4$$

Question 2

$$Q^D = 6,000 - 1,500P$$

$$1,500P = 6,000 - Q^D$$

$$P = \frac{6,000}{1,500} - \frac{1}{1,500} Q^D$$

4 \leftarrow intercept

slope

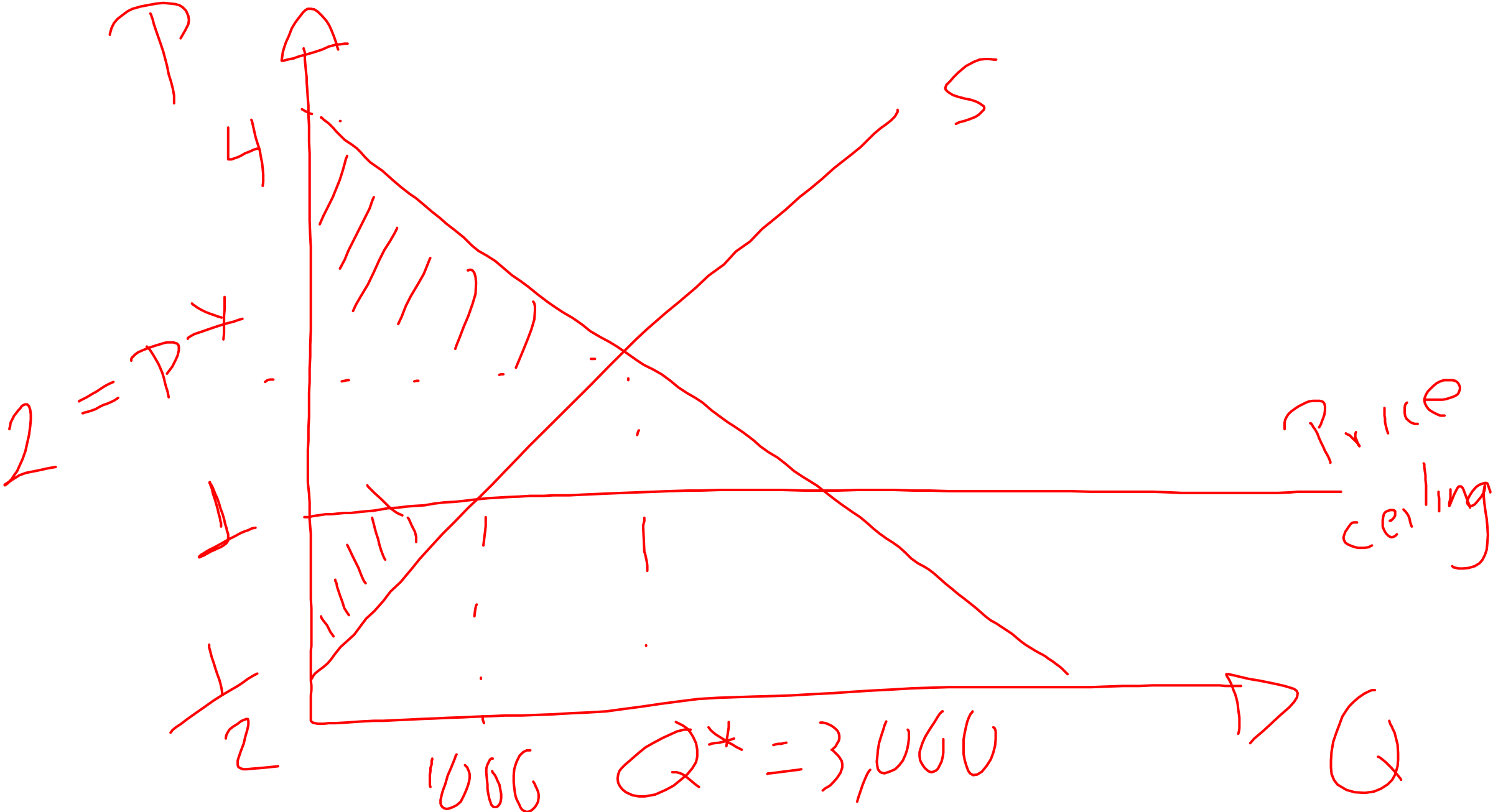
$$Q^S = -1,000 + 2,000P$$

$$2,000P = 1,000 + Q^S$$

$$P = \frac{1}{2} + \frac{1}{2,000} Q^S$$

intercept

slope



$$Q^D = Q^S$$

$$6,000 - 1,500P = -1,000 + 2,000P$$

$$6,000 + 1,000 = 2,000P + 1,500P$$

$$3,500P = 7,000 \Rightarrow P = \frac{7,000}{3,500}$$

$$P^* = 2$$

$$Q^D = 6,000 - 1,500P$$

$$P^* = 2$$

$$Q^* = 6,000 - 1,500(2)$$

$$Q^* = 3,000$$

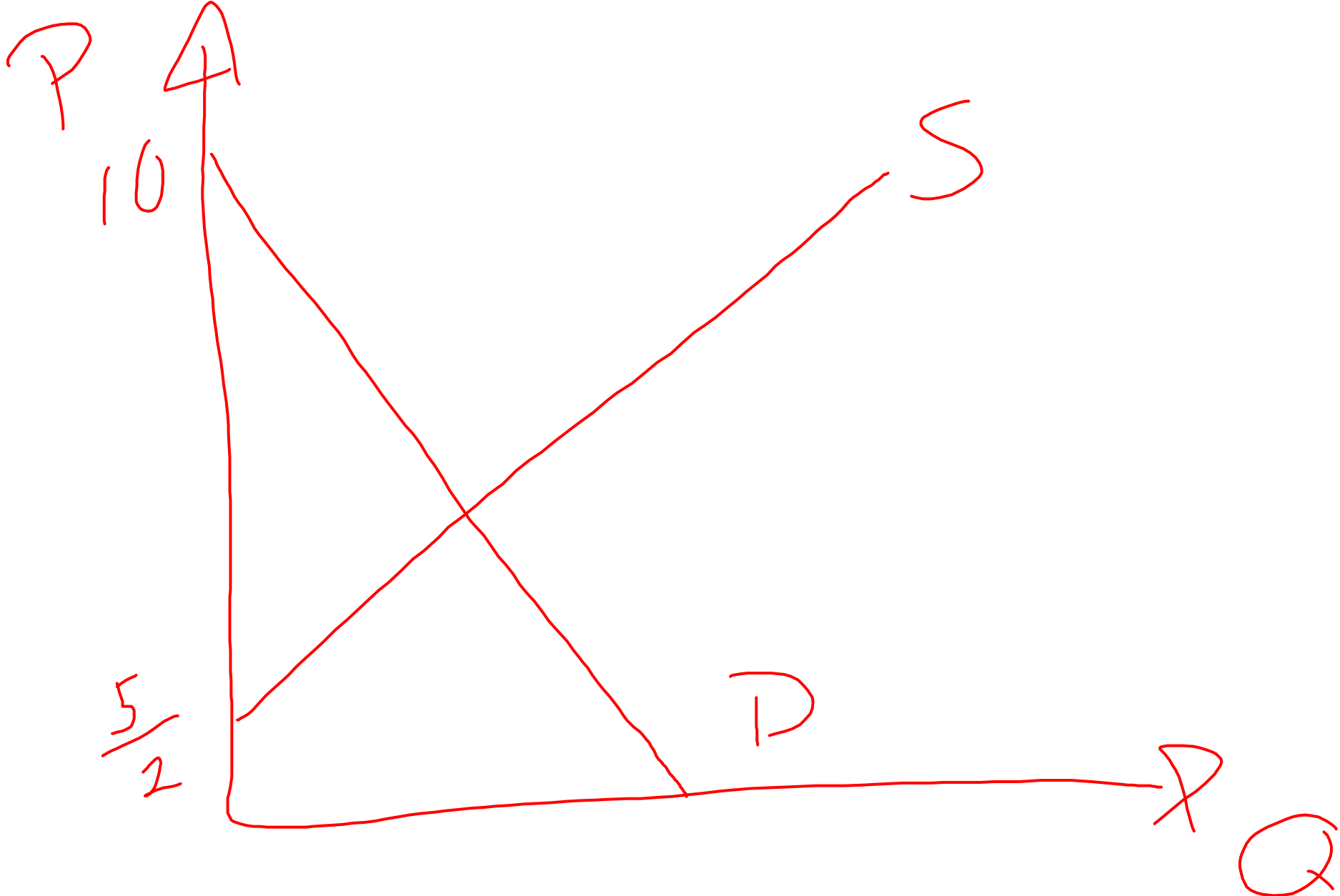
$$Q^D = 20 - 2P$$

$$2P + Q^D = 20 - \cancel{2P} + \cancel{2P}$$

$$2P + \cancel{Q^D} - \cancel{Q^D} = 20 - \cancel{Q^D}$$

$$P = \frac{20}{2} - \frac{Q^D}{2}$$

$$P = 10 - \frac{1}{2} Q^D$$



$$U(x, y) = 4x + 2y$$

$$(2, 4) \Rightarrow U(2, 4) = 4(2) + 2(4)$$

$$U(2, 4) = 8 + 8 = 16$$

$$U(x, y) = 4x + 2y$$

$$MU_x = \frac{\partial U(\cdot)}{\partial x} = 4$$

$$MU_y = \frac{\partial U(\cdot)}{\partial y} = 2$$

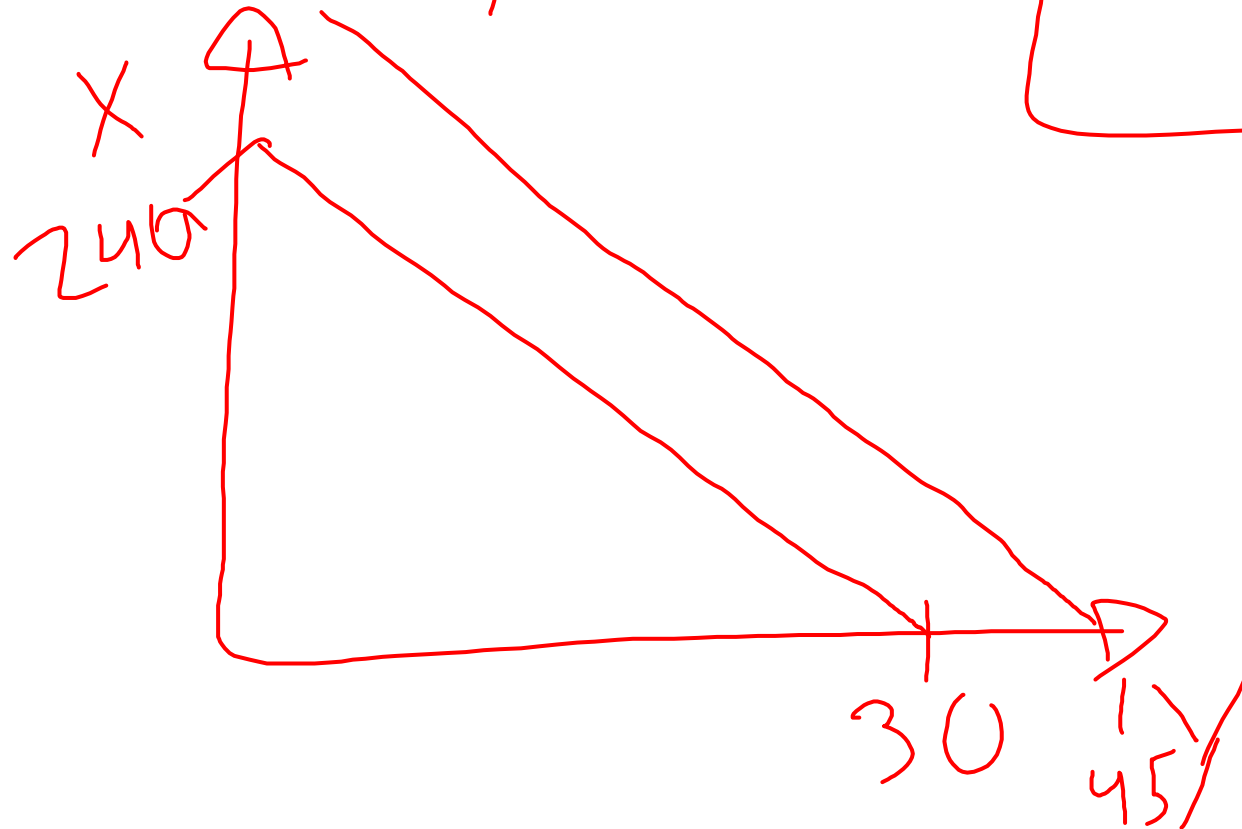
$$m = P_1 X_1 + P_2 X_2$$

$$I = P_x X + P_y Y \Rightarrow$$

$$-\frac{P_y}{P_x}$$

$$\frac{I}{P_1} = \frac{240}{9} = 30$$

$$\frac{I}{P_1} = \frac{360}{9} = 45$$



Consumer theory

Q3.

$$I = P_x X + P_y Y$$

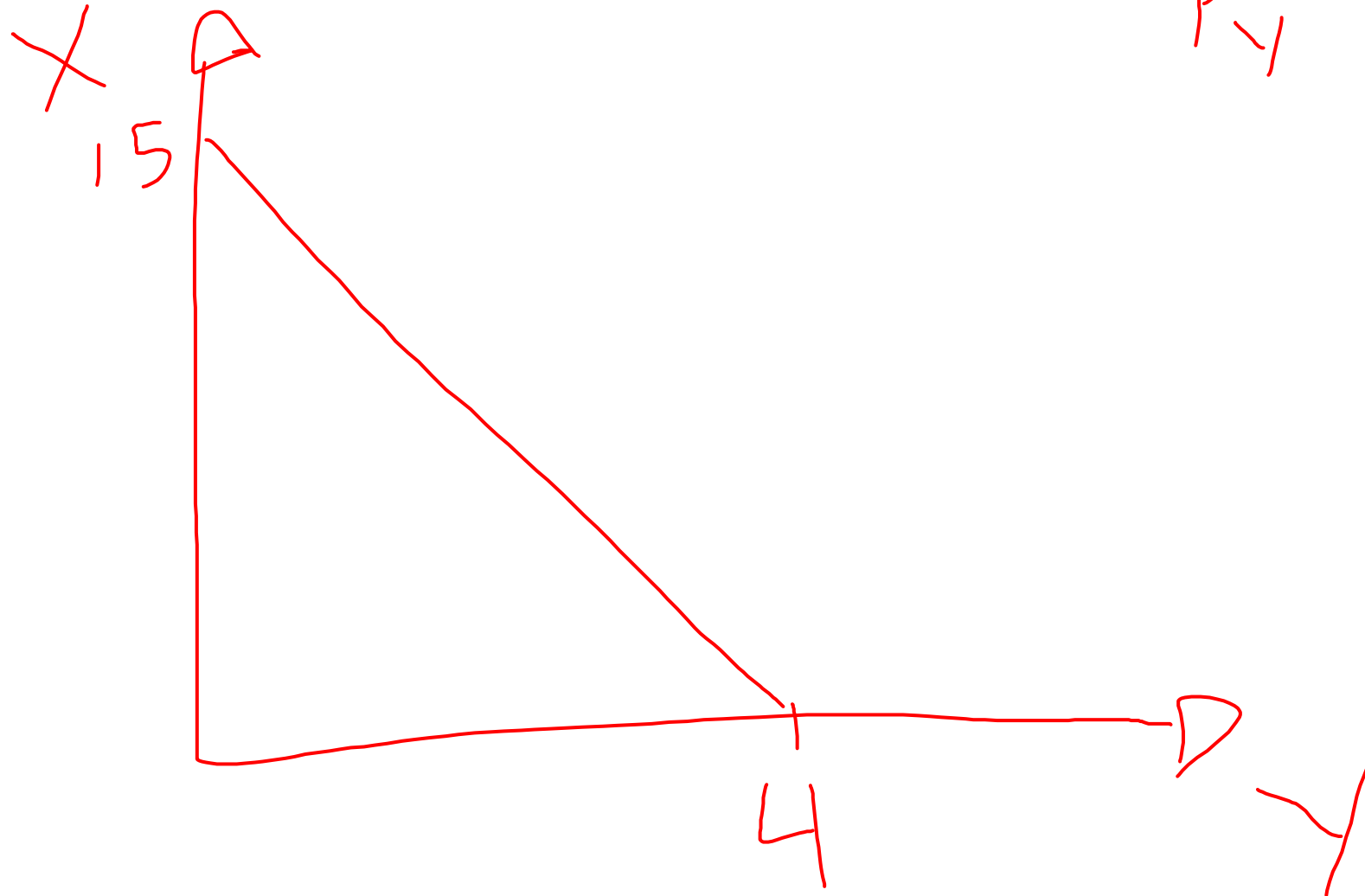
$$30 = 2X + \frac{15}{2}Y$$

$$2X + \frac{15}{2}Y - \frac{15}{2}Y = 30 - \frac{15}{2}Y$$

$$X = \frac{30}{2} - \frac{15}{4}Y \Rightarrow X = 15 - \frac{15}{4}Y$$

$$X = 15 - \frac{15}{2} Y$$

$$\frac{I}{P_Y} = \frac{30}{\frac{15}{2}} = \frac{60}{15} = 4$$



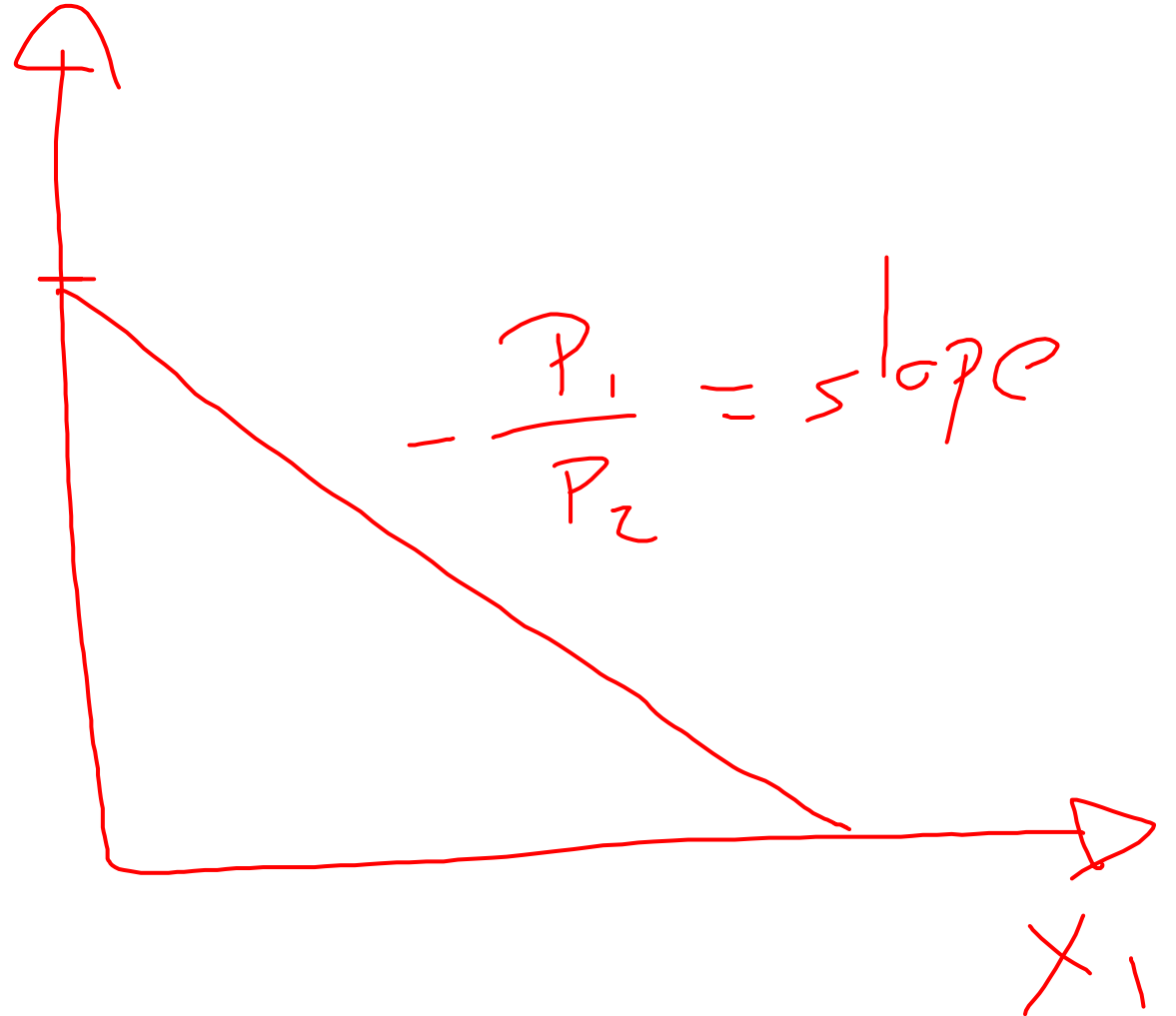
$$M = P_1 X_1 + P_2 X_2$$

$$P_2 X_2 = M - P_1 X_1 \quad X_2$$

$$X_2 = \frac{M}{P_2} - \frac{P_1}{P_2} X_1$$

$$\frac{M}{P_2}$$

$$-\frac{P_1}{P_2} = \text{slope}$$



Q4

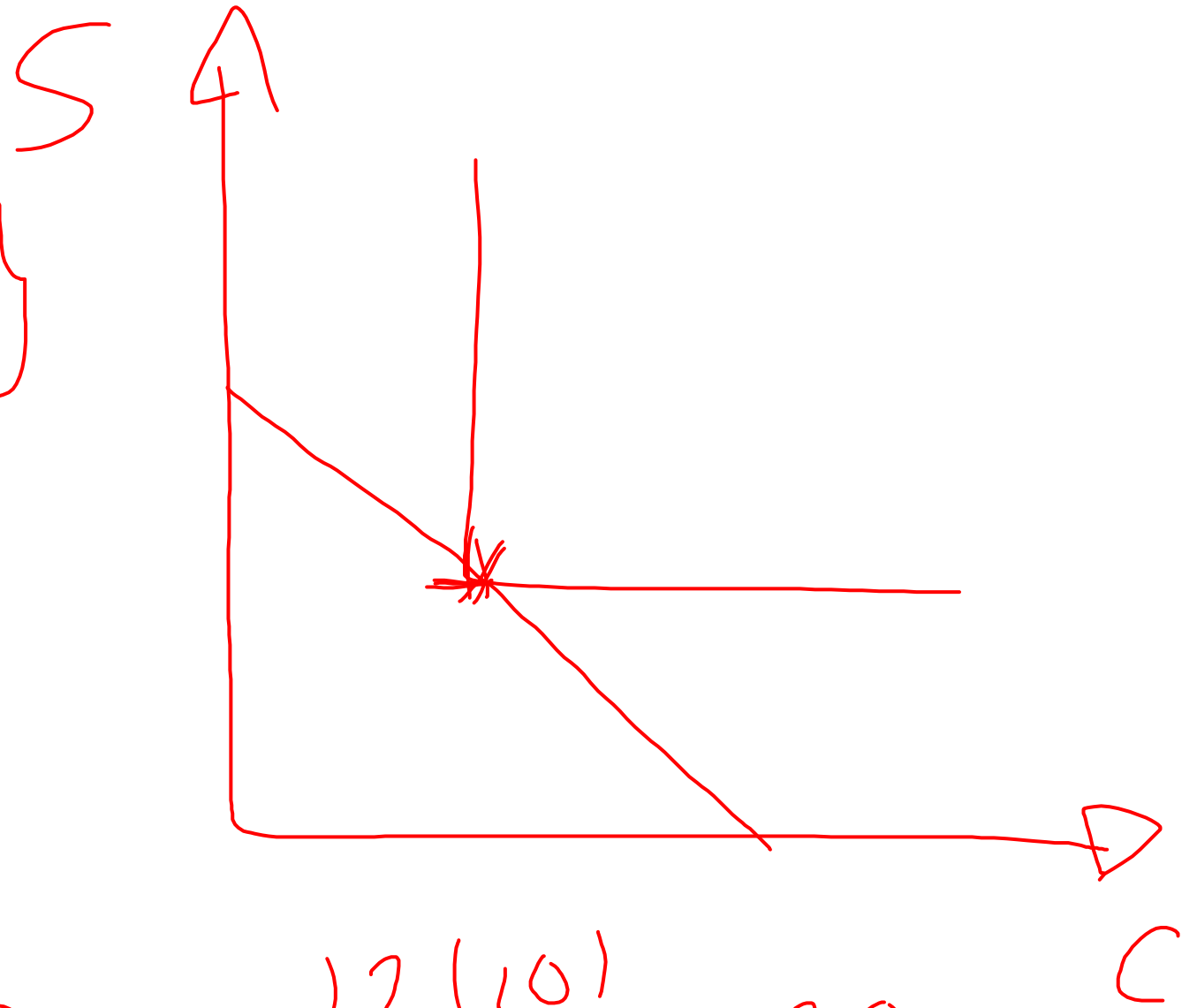
$$U(c, s) = \min\{c, s\}$$

$$c = s = x$$

$$12 = 0.4x + 0.2x$$

$$12 = 0.6x$$

$$12 = \frac{6}{10}x \Rightarrow x = \frac{12(10)}{6} = 20$$

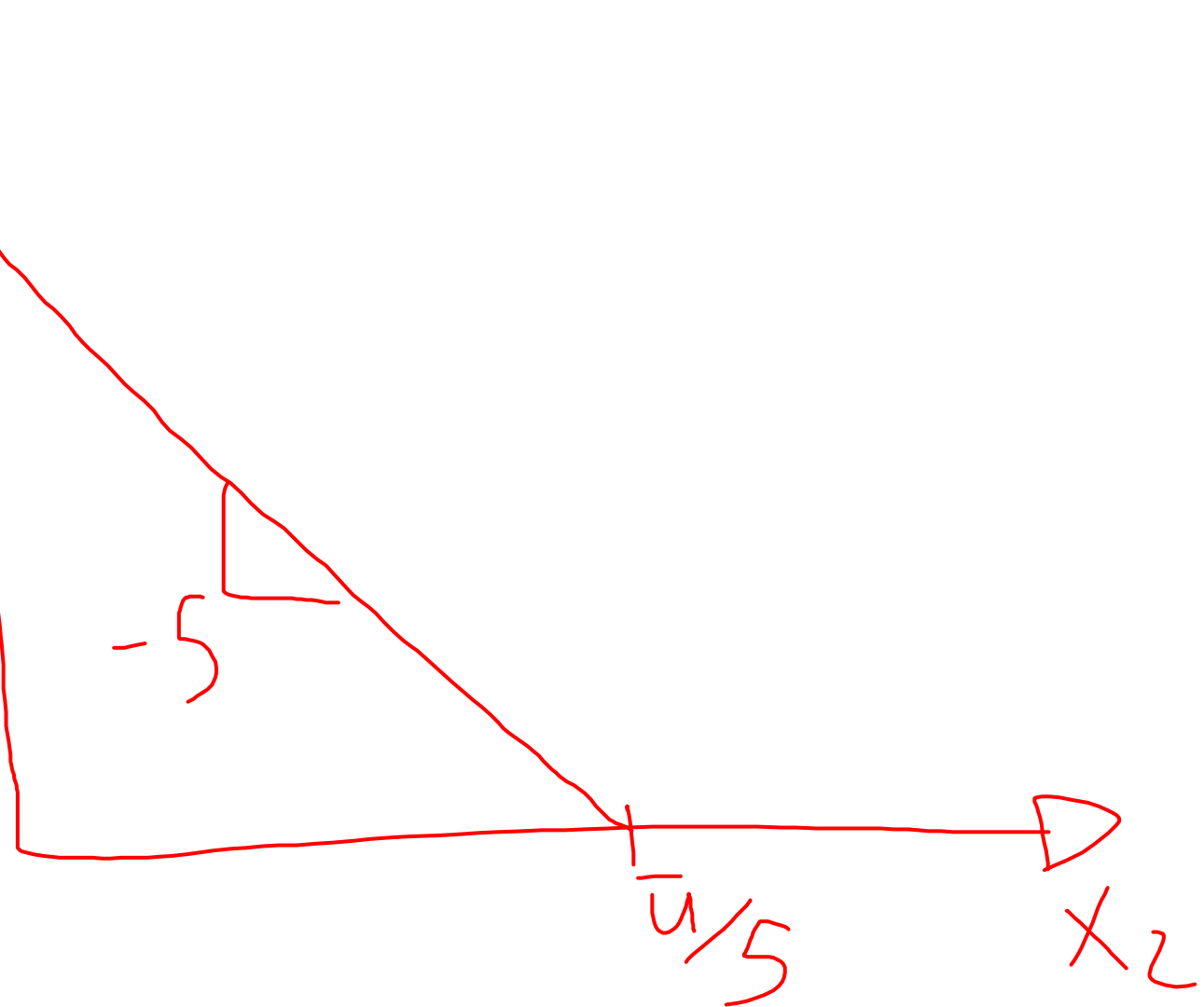


$$U(x_1, x_2) = x_1 + 5x_2$$

$$x_1 = \bar{u} - 5x_2$$

$$0 = \bar{u} - 5x_2$$

$$x_2 = \frac{\bar{u}}{5}$$

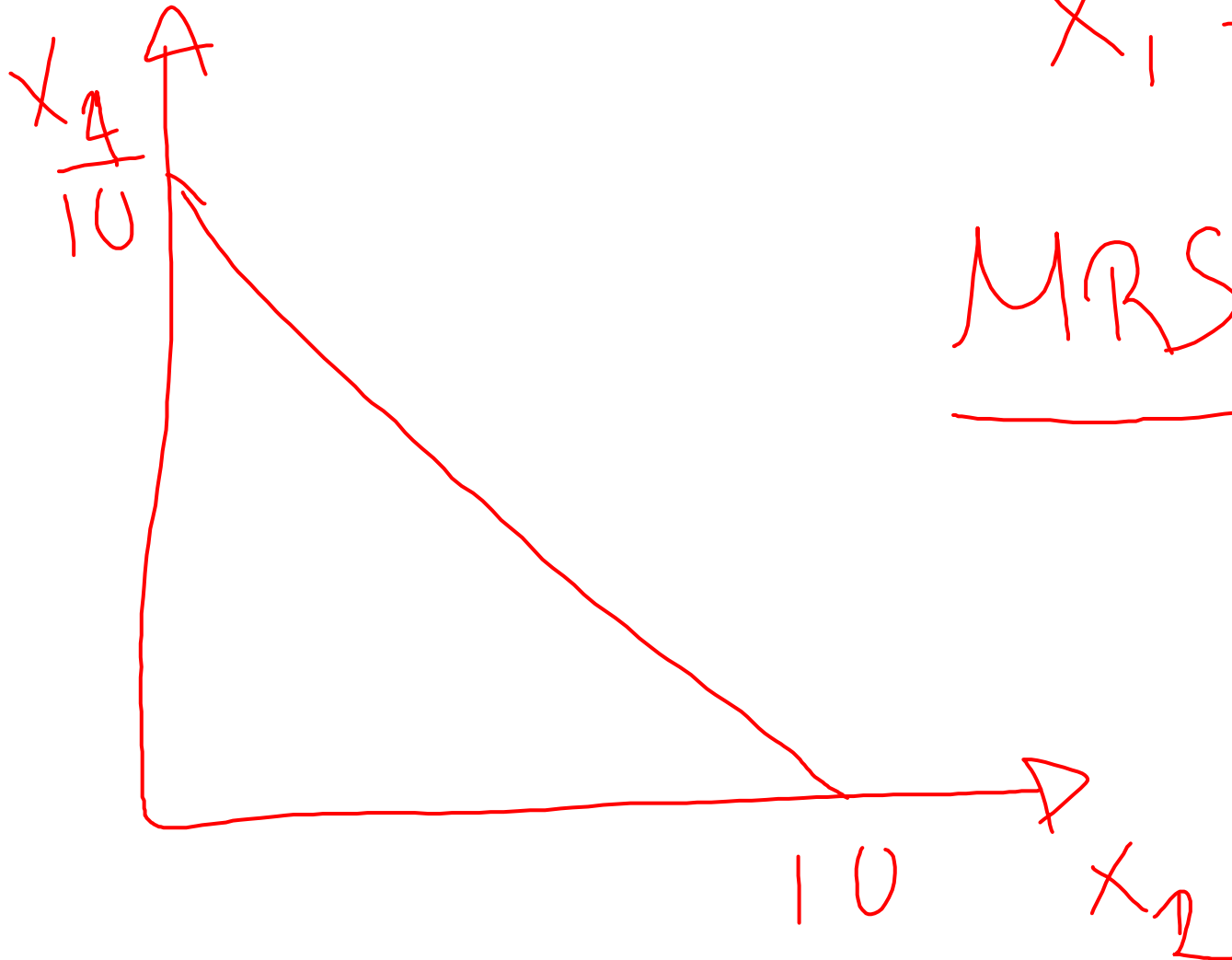


$$10 = X_1 + X_2$$

$$\Rightarrow X_2 = 10 - X_1$$

$$X_1 = 10 - X_2$$

$$\underline{MRS = 5} > \frac{P_2}{P_1} = 1$$



New BC:

$$\boxed{X_1 = 10 - 10 X_2}$$

$$MRS < P_1/P_2$$

