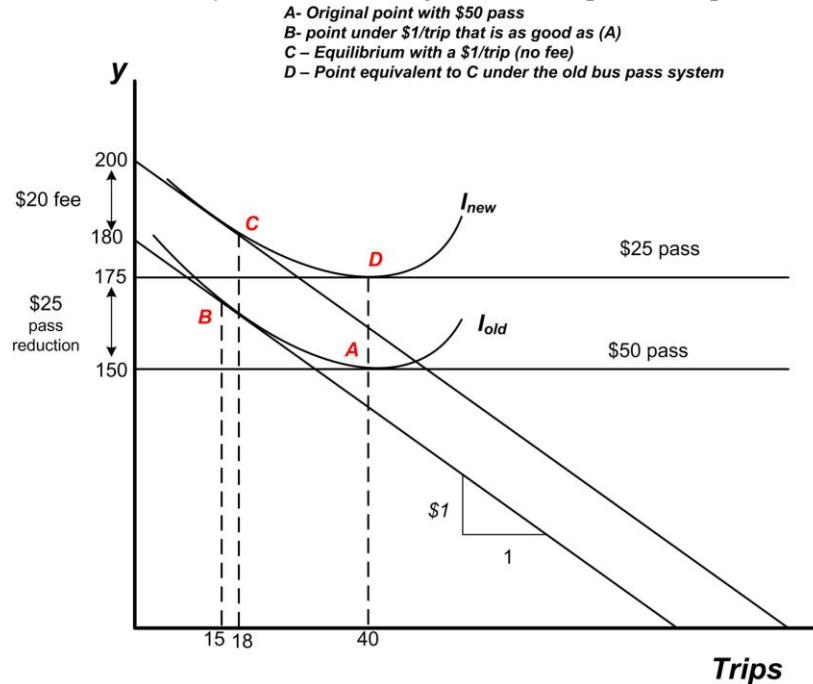


1. Myrtle has \$200 per month to spend on Transit (X) and all other goods (Y). She currently buys a bus pass for \$50 and rides 40 times per month. Myrtle is offered to join a Transit program that would allow her to pay a membership fee and then could ride the bus for \$1 per trip. The most Myrtle would pay for the membership is \$20, and then she would ride 15 times a month. If she were given the membership for free, she would ride the bus 18 times per month. Myrtle also reveals that she would be indifferent between a free membership (and \$1 per ride) versus simply having the traditional bus pass reduced to \$25 per month (flat rate), where she would again choose to ride the bus 40 times a month.
- a. Carefully draw all the relevant budget constraints and indifference curves. Be sure it identify and label all tangencies and equilibrium points.



- b. Determine CV and EV: **CV = -\$30 (Change in fixed fee from 50 to 20 in order to accept a price of \$1)** **EV= -\$25 (the reduction in the Bus Pass price when flat rate)**
2. Skippy has $U = XY$ and a budget constraint $M = P_x X + P_y Y$
- a. Demand functions (from Lagrange) are

$$X = M/2P_x \text{ and } Y = M/2P_y \quad U = M^2/4P_x P_y \text{ (indirect Utility function)}$$

- b. When $P_x = 4$ then $X = 15$ $Y = 60$ $U = 900$. When $P_x = 2$ then $X = 30$ $Y = 60$ $U = 1800$
- c. Use indirect utility with $U = 900$ and $P_x = 2$ to find M

$$M = \sqrt{4P_x P_y U} = 84.8 \quad CV = 120 - 84.8 = 35.2$$

- d. Use indirect utility with $U = 1800$ and $P_x = 4$ to find M

$$M = \sqrt{4P_x P_y U} = 169.7 \quad EV = 169.7 - 120 = 49.7$$