

Break-even Example

An automobile company is investigating the advisability of converting a plant that manufactures economy cars into one that will make retro sports cars. The initial cost for equipment conversion will be \$200 million with a 20% salvage value anytime within a 5-year period. The cost of producing a car will be \$21,000, but it is expected to have a selling price of \$33,000 (to dealers). The production capacity for the first year will be 4000 units. At an interest rate of 12% per year, by what uniform amount will production have to increase each year in order for the company to recover its investment in 3 years?

Let x = gradient increase per year. Set revenue = cost.

$$[4000 + x(A/G, 12\%, 3)](33,000 - 21,000) + (0.20)(200,000,000)(A/F, 12\%, 3) \\ = 200,000,000(A/P, 12\%, 3)$$

$$[4000 + x(0.9246)](12,000) + 40,000,000(0.29635) = 200,000,000(0.41635)$$

$$11,095.2X = 23,416,000$$

$$x = 2110 \text{ cars/year increase}$$