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1. Given the following costs for a piece of necessary machinery, if the machine will be replaced after its useful life with the same machine, **which one would be the best?** (least cost) The relevant interest rate is 12% yearly interest. Initial cost is paid immediately, and the Yearly payments are made at the end of the year.

Machine	Initial Cost	Year 1	Year 2	Year 3	Year 4	Year 5
<del>Machine A</del>	<del>300</del>	<del>100</del>	<del>100</del>	<del>100</del>	<del>100</del>	<del>100</del>
Machine A	-400	-120	-120	-100	-100	
Machine B	-500	-80	-80	-80	-80	-80

Note: Machine A has a lifetime of 3 years, Machine B lasts 4 years, and Machine C lasts 5 years.

~~$$NPV A: -300 - \frac{100}{1.12} - \frac{100}{1.12^2} - \frac{100}{1.12^3} = -540.18$$~~

$$NPV A: -400 - \frac{120}{1.12} - \frac{120}{1.12^2} - \frac{100}{1.12^3} - \frac{100}{1.12^4} = -737 \quad (5)$$

$$NPV B: -500 - 80 \left[ \frac{1}{.12} - \frac{1}{(.12)(1.12)^5} \right] = -788 \quad (5)$$

$$EAC: NPV = \frac{EAC}{.12} \left[ \frac{1}{.12} - \frac{1}{(.12)(1.12)^T} \right]$$

~~$$EAC A = \frac{-540.18}{\left[ \frac{1}{.12} - \frac{1}{(.12)(1.12)^3} \right]} = 224.90$$~~

$$EAC A = \frac{-737}{A_{.12}^4} = -242 \quad (7)$$

$$EAC B = \frac{-788}{A_{.12}^5} = -218.60 \quad (7)$$

B is the best

(6)

