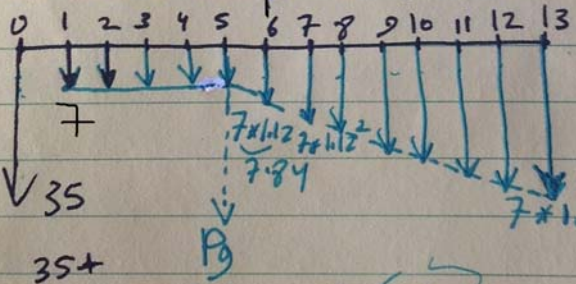
Chemical engineers at Coleman have determined that a small amount of a chemical additive will increase the water repelency of Coleman's tent fabric by 20%. the additive will be purchased for an estimated cost of $7K per year for the first 5 years (based on a contract with the supplier). For the next 8 years, the annual price of the additive is expected to increase by 12% per year. $i = 15\%$. An initial investment of 35K is also needed. What is the PV of the additive cost?



$$PV = 35 + 7(P|A, 15\%, 5) + 7.84(P|g, 15\%, 8)(P|F, 15\%, 5)$$

$$= 35 + \frac{7}{0.15}(1 - 1.15^{-5}) + 7.84 \frac{1 - (1.12/1.15)^8}{0.15 - 0.12} * 1.15^{-5}$$

$$= 35 + 7(3.352155) + 7.84(6.353441)(0.497177)$$

$$= \$83.230K$$