

In-Class Activity 18

Name: _____

ID: _____

Section: _____

Incremental-IRR

CopperArabia may upgrade its ore-conveying drive system with **at most one** of three options below (all 6-year lives, no salvage; **do-nothing is allowed**). The company's MARR is **12%** per year.

	Investment (year 0)	Net annual savings (years 1–6)	IRR
M1	30,000 SAR	7,000 SAR	?
M2	48,000 SAR	12,300 SAR	13.9%
M3	70,000 SAR	17,800 SAR	13.6%
Useful factors: $(P/A, 12\%, 6) = 4.1114$ $(P/A, 15\%, 6) = 3.7845$			

- (1) (3 pts) **Screen for acceptability.** Compute $PW(12\%)$ for **M1** and state whether M1 survives the comparison against the do-nothing alternative.

- (2) (2 pts) Form the incremental cash flow for the next comparison (duel), **M3** – **M2**, year by year, and determine if the increment is a **simple** or **non-simple** investment.

- (3) (6 pts) Compute $PW_{\Delta}(12\%)$ and $PW_{\Delta}(15\%)$, showing all steps.

- (4) (3 pts) Compute i_{Δ}^* . Then, determine your final recommendation for the best option to choose.

- (5) (3 pts) Note that M2's IRR (13.9%) is **higher** than M3's (13.6%). Is your final recommendation the one with the highest IRR? Why or why not?

- (6) (5 pts) Bonus: If M3's life were only **3 years** while M2's remained 6, could you subtract the two series year by year and rate that increment directly? (Hint: State what must be done **first**, naming the Ch. 5–6 tools that do it.)