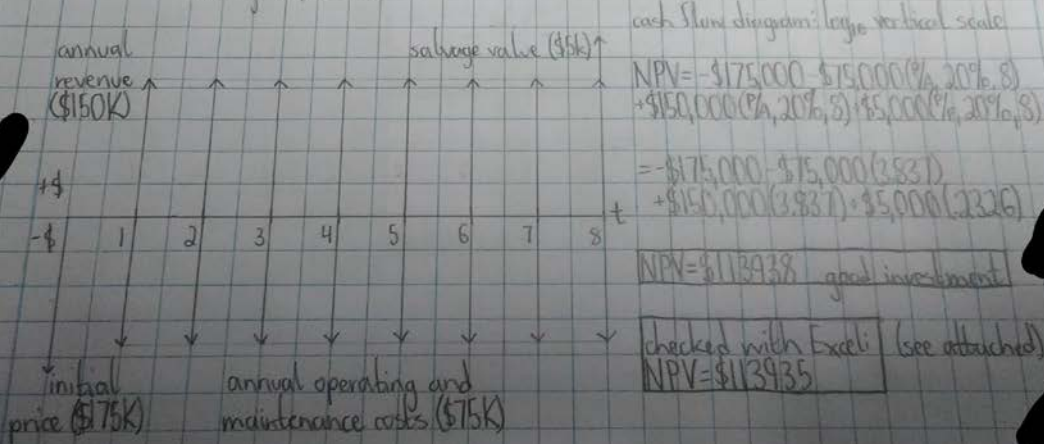


11-12-18
HW 6 Part 1

1 laser cutter: initial cost = \$175k
annual revenue = \$150k
annual operating cost = \$20k
avg annual maintenance = \$5k
useful life = 8 yrs
salvage value = \$5k

MARR = 20% good investment?
* include cash flow diagram, show work using tables
* check computed answer with NPV template
* model cash flows with NPV template
* estimate actual ROR with Excel



ROR from Excel (interest such that NPV=0): ROR = 40.036%

ROR from Excel (interest such that NPV=0): $ROR=40.036\%$

2 fabric pleating machine: options - in house or by consulting firm; 12% interest		
	design in-house (15 years)	hire consulting firm (20 years)
year 1	engineering: \$120,000 fabrication: \$250,000 total: \$370,000	purchase price: \$750,000 (incl. installation)
year 2	installation: \$30,000 validation: \$50,000 total: \$80,000	validation: \$15,000 + 1/2 yr. yield (70,000) total: \$85,000
years operating	\$100,000/yr	\$100,000/yr
3-end maintenance	gradient of \$2,500/yr	gradient of \$4,000/yr
rebuild	year 10, \$50,000	year 15, \$25,000
production	50 km/yr, \$3.50/m (\$175,000/yr)	40 km/yr, \$3.50/m (\$140,000/yr)

NPV, ROR calculated using Excel template (see attached)

in-house: $NPV = -\$83,370$; $ROR = 7.5745\%$

consulting: $NPV = -\$641,240$; $ROR = 100,000,000\%$

The in-house option is the better option.

3 injection molding machine; 6 year life; maintenance \rightarrow \$25,000 at end of first year, gradient of \$5,000; 12% interest; EUAC = ?

