PRINCIPLES OF FINANCE
FIN 3403
Capital Budgeting

Following are the estimated cash flows associated with two capital budgeting projects—Project A and Project B—that Ditzy Chips is currently evaluating:

Year	$\hat{CF}_A$	$\hat{CF}_B$
0	$(45,000)	$(60,000)
1	22,000	4,500
2	12,100	8,500
3	8,500	12,000
4	6,000	10,000
5	5,000	29,500
6	7,000	36,000

Ditzy's required rate of is 12 percent.

Solutions for part a.

Year	$\hat{CF}_A$	PV @ 12%	Cumulative CF_A	$\hat{CF}_B$	PV @ 12%	Cumulative CF_B
0	$(45,000)	$(45,000.00)	$(45,000)	$(60,000)	$(60,000.00)	$(60,000)
1	22,000	19,642.86	(23,000)	4,500	4,017.86	(55,500)
2	12,100	9,646.05	(10,900)	8,500	6,776.15	(47,000)
3	8,500	6,050.13	(2,400)	12,000	8,541.36	(35,000)
4	6,000	3,813.11	3,600	10,000	6,355.18	(25,000)
5	5,000	2,837.13	8,600	29,500	16,739.09	4,500
6	7,000	3,546.42	15,600	36,000	18,238.72	20,100
		NPV_A = 535.70			NPV_B = 668.36	
		IRR_A = 12.56%			IRR_B = 12.29%	

$PB_A = 3 + 2{,}400/6{,}000 = 3.4$ years

$PB_A = 4 + 25{,}000/29{,}500 = 4.8$ years

a. Compute the traditional payback period, net present value (NPV), and internal rate of return (IRR) for each project.

b. Which project should be purchased if the projects are independent? Explain why.

Both have positive NPVs.

c. Which project should be purchased if the projects are mutually exclusive? Explain why.

$NPV_B > NPV_A$, so B should be purchased.

d. Given the results of your computation in part a, what should be the discounted payback period for each project? Give your answer in words. Additional computations are not needed to answer this question.

Year	$\hat{CF}_A$	PV @ 12%	Cumulative PV	$\hat{CF}_B$	PV @ 12%	Cumulative PV
0	$(45,000)	$(45,000.00)	$(45,000)	$(60,000)	$(60,000.00)	$(60,000)
1	22,000	19,642.86	(25,357)	4,500	4,017.86	(55,982)
2	12,100	9,646.05	(15,711)	8,500	6,776.15	(49,206)
3	8,500	6,050.13	(9,661)	12,000	8,541.36	(40,665)
4	6,000	3,813.11	(5,848)	10,000	6,355.18	(34,309)
5	5,000	2,837.13	(3,011)	29,500	16,739.09	(17,570)
6	7,000	3,546.42	536	36,000	18,238.72	668
		NPV_A = 535.70			NPV_B = 668.36	
		IRR_A = 12.56%			IRR_B = 12.29%	

PB_{DiscA} = 5 + 3,011/3,546 = 5.85 years

PB_A = 5 + 17,570/18,239 = 5.96 years

e. Construct an NPV profile for each project. Under what conditions is Project A preferred to Project B? Under what conditions is Project B preferred to Project A?