NPV Calculation 12%

Tax Rate = 40%

Discount Rate = **12%**

Step 1: Calculate Annual Premium Savings B.T.

Step 2: Calculate Discounted Premium Savings B.T.

Step 3: Calculate A.T. Discounted Premium Savings

			Step 1		**Step 2**		**Step 3**
1	2	3=(1-%) x Prior 3	4=$400K-3	5	6=4x5	7=6xt	8=6-7
Year	Estimated Premium Reduction Off Prior Year	Estimated Projected Premium	Total Premium Savings	(**12%** Discount Rate)	BT Discounted Premium Savings	Tax (**40%**)	AT Discounted Premium Savings
x6 (n=0)	0%	$ 400,000	$ -		$ -		
x7 (n=1)	10%	$ 360,000	$ 40,000	0.893	$ 35,720		
x8 (n=2)	20%	$ 288,000	$ 112,000	0.797	$ 89,264		
x9 (n=3)	20%	$ 230,400	$ 169,600	0.712	$ 120,755		
x10 (n=4)	0%	$ 230,400	$ 169,600	0.636	$ 107,866		
Total			**$ 491,200**		**$ 353,605**	**$ 141,442**	**$ 212,163**

Step 4: Calculate Annual Depreciation

Step 5: Calculate Annual Depreciation Tax Benefit

Machine Cost	$ 300,000	
Useful Live	5	
Cost Per Year	$ 60,000	Step 4=$300,000/5
Tax Rate	40%	
Tax Savings Per Year	$ 24,000	Step 5=$60,000 x .40

Step 6: Calculate Discounted Depreciation Tax Benefit

Year	Tax Benefit	(12% Discount Rate)	Discounted Depreciation Tax Benefit
x6	$ 24,000		$ 24,000
x7	$ 24,000	0.893	$ 21,432
x8	$ 24,000	0.797	$ 19,128
x9	$ 24,000	0.712	$ 17,088
x10	$ 24,000	0.636	$ 15,264
Total	$ 120,000		**$ 96,912**

Step 7: Put it all together

Cost of Machine	$ (300,000)	Outflow
AT Discounted Premium Savings (Step 3)	$ 212,163	Inflow
Discounted Depreciation Tax Benefit (Step 6)	$ 96,912	Inflow
After Tax NPV	**$ 9,075**	**Positive NPV**

NPV Calculation 15%

Tax Rate = 40%

Discount Rate = **15%**

Step 1: Calculate Annual Premium Savings B.T.

Step 2: Calculate Discounted Premium Savings B.T.

Step 3: Calculate A.T. Discounted Premium Savings

			Step 1		**Step 2**		**Step 3**
1	2	3=(1-%) x Prior 3	4=$400K-3	5	6=4x5	7=6xt	8=6-7
Year	Estimated Premium Reduction Off Prior Year	Estimated Projected Premium	Total Premium Savings	(**15%** Discount Rate)	BT Discounted Premium Savings	Tax (**40%**)	AT Discounted Premium Savings
x6 (n=0)	0%	$ 400,000	$ -		$ -		
x7 (n=1)	10%	$ 360,000	$ 40,000	0.870	$ 34,800		
x8 (n=2)	20%	$ 288,000	$ 112,000	0.756	$ 84,672		
x9 (n=3)	20%	$ 230,400	$ 169,600	0.658	$ 111,597		
x10 (n=4)	0%	$ 230,400	$ 169,600	0.572	$ 97,011		
Total			**$ 491,200**		**$ 328,080**	**$ 131,232**	**$ 196,848**

Step 4: Calculate Annual Depreciation

Step 5: Calculate Annual Depreciation Tax Benefit

Machine Cost	$ 300,000	
Useful Live	5	
Cost Per Year	$ 60,000	Step 4=$300,000/5
Tax Rate	40%	
Tax Savings Per Year	$ 24,000	Step 5=$60,000 x .40

Step 6: Calculate Discounted Depreciation Tax Benefit

Year	Tax Benefit	(15% Discount Rate)	Discounted Depreciation Tax Benefit
x6	$ 24,000		$ 24,000
x7	$ 24,000	0.870	$ 20,880
x8	$ 24,000	0.756	$ 18,144
x9	$ 24,000	0.658	$ 15,792
x10	$ 24,000	0.572	$ 13,728
Total	$ 120,000		**$ 92,544**

Step 7: Put it all together

Cost of Machine	$ (300,000)	Outflow
AT Discounted Premium Savings (Step 3)	$ 196,848	Inflow
Discounted Depreciation Tax Benefit (Step 6)	$ 92,544	Inflow
After Tax NPV	**$ (10,608)**	**Negative NPV**

NPV Calculation 20%

Tax Rate = 40%

Discount Rate = **20%**

Step 1: Calculate Annual Premium Savings B.T.

Step 2: Calculate Discounted Premium Savings B.T.

Step 3: Calculate A.T. Discounted Premium Savings

			Step 1		**Step 2**		**Step 3**
1	2	3=(1-%) x Prior 3	4=$400K-3	5	6=4x5	7=6xt	8=6-7
Year	Estimated Premium Reduction Off Prior Year	Estimated Projected Premium	Total Premium Savings	(**20%** Discount Rate)	BT Discounted Premium Savings	Tax (**40%**)	AT Discounted Premium Savings
x6 (n=0)	0%	$ 400,000	$ -		$ -		
x7 (n=1)	10%	$ 360,000	$ 40,000	0.833	$ 33,320		
x8 (n=2)	20%	$ 288,000	$ 112,000	0.694	$ 77,728		
x9 (n=3)	20%	$ 230,400	$ 169,600	0.579	$ 98,198		
x10 (n=4)	0%	$ 230,400	$ 169,600	0.482	$ 81,747		
Total			**$ 491,200**		**$ 290,994**	**$ 116,397**	**$ 174,596**

Step 4: Calculate Annual Depreciation

Step 5: Calculate Annual Depreciation Tax Benefit

Machine Cost	$ 300,000	
Useful Live	5	
Cost Per Year	$ 60,000	Step 4=$300,000/5
Tax Rate	40%	
Tax Savings Per Year	$ 24,000	Step 5=$60,000 x .40

Step 6: Calculate Discounted Depreciation Tax Benefit

Year	Tax Benefit	(20% Discount Rate)	Discounted Depreciation Tax Benefit
x6	$ 24,000		$ 24,000
x7	$ 24,000	0.833	$ 19,992
x8	$ 24,000	0.694	$ 16,656
x9	$ 24,000	0.579	$ 13,896
x10	$ 24,000	0.482	$ 11,568
Total	$ 120,000		**$ 86,112**

Step 7: Put it all together

Cost of Machine	$ (300,000)	Outflow
AT Discounted Premium Savings (Step 3)	$ 174,596	Inflow
Discounted Depreciation Tax Benefit (Step 6)	$ 86,112	Inflow
After Tax NPV	**$ (39,292)**	**Negative NPV**