TIME VALUE WORKSHEET

Define:		
	Time	The end of a year or period
	MARR	Minimum Attractive Rate of Return
	Interest %I	Rate lender charges to use their money
	Discount Rate	Is an interest rate, but used to discount FV to PV
	Opportunity Cost	The cost to use your own money
	PV	Present Value
	FV	Future Value
	AV	Annual Value
	PMT	Payment, monthly
	MV	Monthly Value, same as PMT

1. You have $30,000 to buy some cows. If you hold off for 5 years, how much will you have then at 6% interest?

   Time Line:

   Convert: PV to FV

   Use Table: PV to FV Annual

   Calculation: $30,000 x 1.3382 = $40,146

2. The book value of a tractor is $35,000 at the end of year 7. At 8% MARR, this would compensate for how much of its price?

   Time Line:

   Convert: FV to PV

   Use Table: FV to PV Annual

   Calculation: $35,000 x 0.5835 = $20,422

3. You need to borrow $50,000 for new milking equipment. If you borrow at 9% interest for 4 years, what is the annual payment?

Time Line:

Convert:	PV	to	AV			
Use Table:	PV to AV Annually					
Calculation:	$50,000	x	0.3087	=	$15,435	

4. Calculate the monthly payment from above.

Time Line:

Convert:	PV	to	PMT			
Use Table:	PV to PMT Monthly					
Calculation:	$50,000	x	0.02489	=	$1,244	

5. A cow will net $400/yr plus $500 salvage at the end of three (3) years. What is the most you can pay for her and earn 12% on the investment each year?

Time Line:

Convert:	AV	to	PV		($400/yr)	
	FV		PV		($500 salvage)	
Use Table:	AV to PV Annually		&	FV to PV Annual		
Calculation:	$400	x	2.4018	=	$960.72	
	$500	x	0.7118	=	$355.90	
			Sum		$1,316.62	

6. You own farm facilities worth $250,000 that you wish to rent. After 7 years they will be worth $200,000, but you will spend $3,000 for roofs in 3 years. What should be the annual rent to earn 10% on your investment?

Time Line:

Convert:					
	PV	to	PV		$250,000
	FV	to	PV		$200,000
	FV	to	PV		$3,000

Use Table:	FV to PV Annual	&	

Calculation:					
	$200,500	x	1	=	$250,000
	$200,000	x	0.5132	=	$102,640
	$3,000	x	0.7513	=	$2,254
			Sum		$149,613.90

Convert:	PV	to	AV

Use Table:	PV to AV Annually

Calculation:	$149,614	x	0.2054	=	$30,730.70

7. From 1975 to 2000 per capita consumption of cheese, has increased from 14.3 to 29.8 pounds. Calculate the annual rate of increase.

Time Line:

Known	PV	FV	N
To be determined		%I	

FV/PV = 2.0839
<5%
Actually 3%