Chapter 9, E 10.

(1)	Simple interest				
	$6,000	x	12%	=	$ 720.00
	Principal				6,000.00
	Maturity value				$6,720.00
(2)	Compounded semiannually				
	$6,000	x	6%	=	$ 360.00
	6,360	x	6%	=	381.60
	Principal				6,000.00
	Maturity value				$6,741.60
(3)	Compounded quarterly at 3% for 4 periods (see Table 1 in the appendix on future value and present value tables)				
	$6,000	x	1.126	=	$6,756.00
(4)	Compounded monthly at 1% for 12 periods (see Table 1 in the appendix on future value and present value tables)				
	$6,000	x	1.127	=	$6,762.00

Chapter 9, E 11.

(1)	Single payment of $40,000 at 7% for 10 years (see Table 1 in the appendix on future value and present value tables)				
	$40,000	x	1.967	=	$78,680
(2)	Ten annual payments of $4,000 at 7% (see Table 2 in the appendix on future value and present value tables)				
	$4,000	x	13.816	=	$55,264
(3)	Single payment of $12,000 at 9% for 7 years (see Table 1 in the appendix on future value and present value tables)				
	$12,000	x	1.828	=	$21,936
(4)	Seven annual payments of $12,000 at 9% (see Table 2 in the appendix on future value and present value tables)				
	$12,000	x	9.200	=	$110,400

Chapter 9, E 12.

$12,600.00	annual rent
× 3.993	factor, from Table 4 in the appendix on future value and present value tables, for present value of $1 per period, for 5 periods at 8%
$50,311.80	present value of rent to be paid for 5 years

Davis should expect to pay $50,311.80.

Chapter 9, E 13.

(1)	Single payment of $12,000 at 6% for 12 years (see Table 3 in the appendix on future value and present value tables)				
	$12,000	x	0.497	=	$5,964
(2)	Twelve annual payments of $1,000 at 6% (see Table 4 in the appendix on future value and present value tables)				
	$1,000	x	8.384	=	$8,384
(3)	Single payment of $2,500 at 9% for 5 years (see Table 3 in the appendix on future value and present value tables)				
	$2,500	x	0.650	=	$1,625
(4)	Five annual payments of $2,500 at 9% (see Table 4 in the appendix on future value and present value tables)				
	$2,500	x	3.890	=	$9,725

Chapter 9, E 14.

	Years	Rate	Factor from Table 3*				Present Value of $30,000
(1)	5	9%	0.650	x	$30,000	=	$19,500.00
(2)	10	9%	0.422	x	30,000	=	12,660.00
(3)	5	5%	0.784	x	30,000	=	23,520.00
(4)	10	5%	0.614	x	30,000	=	18,420.00

*In the appendix on future value and present value tables.

Chapter 9, E 15.

	Payments	Rate	Factor from Table 4*				Present Value of $2,400 Payments
(1)	7	6%	5.582	x	$2,400	=	$13,396.80
(2)	14	6%	9.295	x	2,400	=	22,308.00
(3)	7	8%	5.206	x	2,400	=	12,494.40
(4)	14	8%	8.244	x	2,400	=	19,785.60

*In the appendix on future value and present value tables.

Chapter 9, E 16.

To find the present value of the purchase transaction:

$ 2,600.00	annual net cash flow
x 4.639	factor, from Table 4 in the appendix on future value and present value tables, for 8 years at 14%
$12,061.40	present value of net cash flows
– 15,000.00	less machine purchase price
($ 2,938.60)	net present value of transaction

At a required rate of return of 14 percent, the cost of the machine is greater than the present value of the cash flows the machine will generate. Purchasing the machine does not appear to be a smart business decision.

Chapter 9, E 17.

Since the 16 percent annual interest is compounded quarterly, the applicable interest rate is 4 percent (16 percent ÷ 4 quarters in a year), and the number of periods is 3 (9 months ÷ 3 months in a quarter). The purchase (sale) price is computed as follows (see Table 3 in the appendix on future value and present value tables):

Future payment	x	Factor (3 periods, 4%)	=	Present Value
$400,000	x	0.889	=	$355,600

Chapter 9, E 18.

The future value factor (from Table 1 in the appendix on future value and present value tables) is based on three quarterly periods at 1 percent (4 percent divided by 4 quarters).

Investment	x	Factor (3 periods, 1%)	=	Future Value
$2,500,000	x	1.030	=	$2,575,000

Chapter 9, E 19.

See Table 2 in the appendix on future value and present value tables.

Future value of fund	÷	Factor (4 periods, 10%)	=	Annual Investment
$1,500,000	÷	4.641	=	$323,206*

*Rounded.

Chapter 9, E 20.

Lima's offer to sell:

From Table 4 in the appendix on future value and present value tables:

Periodic Cash Flow	x	Factor (20 periods, 12%)	=	Present Value
$200,000	x	7.469	=	$1,493,800

Moreno's offer to buy:

From Table 4 in the appendix on future value and present value tables:

Periodic Cash Flow	x	Factor (10 periods, 12%)	=	Present Value
$160,000	x	5.650	=	$904,000

The range between the offer to buy and the offer to sell is from $904,000 to $1,493,800.

Chapter 9, P 5.					
1. The time value of money applied					
a.	Future value of a single payment (Table 1)				
	Factor: 8%, 2 periods				
	$50,000	x	1.166	=	$58,300
	Fund balance	=	$58,300		
b.	Present value of a single payment (Table 3)				
	Factor: 8%, 4 periods				
	$150,000	x	0.735	=	$110,250
	Initial deposit	=	$110,250		
c.	Present value of an ordinary annuity (Table 4)				
	Factor: 8%, 5 periods				
	$100,000	x	3.993	=	$399,300
	Purchase price	=	$399,300		
d.	Future value of an ordinary annuity (Table 2)				
	Factor: 8%, 5 periods				
	$800,000	÷	5.867	=	$136,355.89
	Annual payments	=	$136,355.89		
2. User Insight: Usefulness of time value of money discussed					
The fundamental reason time value of money is a useful tool in making business decisions is that it allows the decision maker to compare various alternatives in the present, when business decisions are actually made.					