Applications

1. Interpret the quote in the context of what you learned about consumer credit in this section. See margin.

Solve each problem. Round monetary amounts to the nearest cent.

2. Monique buys a $4,700 air conditioning system using an installment plan that requires 15% down. How much is the down payment? $705

3. Craig wants to purchase a boat that costs $1,420. He signs an installment agreement requiring a 20% down payment. He currently has $250 saved. Does he have enough for the down payment? No

4. Jean bought a $1,980 snow thrower on an installment plan. The installment agreement included a 10% down payment and 18 monthly payments of $116 each.
   a. How much is the down payment? $198
   b. What is the total amount of the monthly payments? $2,088
   c. How much did Jean pay for the snow thrower on the installment plan? $2,286
   d. What is the total finance charge? $306
   e. If Jean models her payment plan as an arithmetic sequence, give the first term a_1 and the common ratio d. $a_1 = 198; d = 116$

5. Linda bought a washer and dryer from Millpage Laundry Supplies for y dollars. She signed an installment agreement requiring a 15% down payment and monthly payments of x dollars for 1 year.
   a. Express her down payment algebraically. $0.15y$
   b. How many monthly payments must Linda make? 12
   c. Express the total amount of the monthly payments algebraically. $12x$
   d. If Linda models her payment plan as an arithmetic sequence, give the first term a_1 and the common ratio d. $a_1 - 0.15y; d = x$
   e. Express the total amount Linda pays for the washer and dryer on the installment plan algebraically. $12x = 0.15y$
   f. Express the finance charge algebraically. $(12x + 0.15y) - y$, or $12x - 0.85y$

6. Zeke bought a $2,300 bobsled on an installment plan. He made a $450 down payment, and he has to make monthly payments of $93.50 for the next 2 years. How much total interest will he pay? $394

7. Gary is buying a $1,250 computer on an installment plan. He makes a down payment of $150. He has to make monthly payments of $48.25 for 2½ years. What is the total finance charge? $347.50

8. Mazzeo's Appliance Store requires a down payment of ⅓ on all installment purchases. Norton's Depot requires a 30% down payment on installment purchases. Which store's down payment rate is lower? Norton's

9. Ari purchased a microwave oven on an installment plan for m dollars. He made a 20% down payment and agreed to pay x dollars per month for two years. Express the finance charge (interest) algebraically. $0.2m + 24x - m$, or $24x$

10. Adam bought a $1,670 custom video game/sound system on a special no-interest plan. He made a $100 down payment and agreed to pay the entire purchase off in 1½ years. The minimum monthly payment is $10. If he makes the minimum monthly payment up until the last payment, what will be the amount of his last payment? $1,400

11. Max created a spreadsheet for installment purchase calculations.

	A	B	C	D	E	F	G	H
1	Purchase Price	Down Payment Percentage as a Decimal	Down Payment	Monthly Payment	Time in Years	Time in Months	Total of Monthly Payments	Finance Charge (Interest)
2	$1,200	0.20	f.	$97.01	1	j.	n.	s.
3	$1,750	0.10	g.	$71.12	2	k.	p.	t.
4	$1,340	0.15	h.	$77.23	1.5	l.	q.	u.
5	$980	0.10	i.	$165.51	0.5	m.	r.	v.

a. Write a spreadsheet formula to compute the down payment in cell C2. = A2*B2
b. Write a spreadsheet formula to compute the time in months in cell F2. = 12*E2
c. Write a spreadsheet formula to compute the total of monthly payments in cell G2. = D2*F2
d. Write the spreadsheet formula to compute the finance charge in cell H2. = C2 + G2 − A2
e. Use your answers to a–d to fill in the missing entries f–v. See margin.

12. If Tanya purchased a $1,700 set of golf clubs on a 9-month layaway plan and had to pay a monthly payment of $201, what is the sum of the monthly payments? What was the fee charged for the layaway plan? $1,809; $109

13. Chris purchases living room furniture for $4,345 from Halloran Gallery. She has a 1-year, no-interest, no-money-down, deferred payment plan. She does have to make a $15 monthly payment for the first 11 months.
   a. What is the sum of these monthly payments? $165
   b. How much must Chris pay in the last month of this plan? $4,180
   c. What is the difference between the layaway plan in Exercise 12 and the deferred payment plan in Exercise 13? See margin.

14. Audrey purchases a riding lawnmower using a 2-year, no-interest deferred payment plan at Lawn Depot for x dollars. There was a down payment of d dollars and a monthly payment of m dollars. Express the amount of the last payment algebraically. $x − d − 23m$

15. Some stores offer a *rent-to-own* plan. The customer makes a down payment, receives the merchandise at time of purchase, and makes monthly payments. The sum of the monthly payments is lower than the cost of the item. When the last payment is made, customers make a choice. They can purchase the item and apply their payments toward the cost. They can return the item, which means they rented it for a certain period of months.
   a. Sharon bought a $2,100 high-definition television (HDTV) on a 6-month rent-to-own plan. The down payment was 10%. What was the dollar value of the down payment? $210
   b. Her monthly payments were $75 per month. If she decides not to buy the HDTV after the 6 months, what was her cost to rent it? $660

16. Bernie bought a refrigerator at a special sale. The refrigerator regularly sold for $986. No down payment was required. Bernie has to pay $69 per month for 1½ years. What is the average amount Bernie pays in interest each month? $14.22

17. Lillian purchased a violin from Smash Music Stores. It regularly sold for $670, but was on sale at 10% off. She also had to pay 8% sales tax. She bought it on an installment plan and paid 15% of the total cost with tax as a down payment. Her monthly payments were $58 per month for 1 year.
   a. What is the discount? $67
   b. What is the sale price? $603
   c. What is the sales tax? $48.24
   d. What is the total cost of the violin? $651.24
   e. What is the down payment? $97.69
   f. What is the total of the monthly payments? $696
   g. What is the total she paid for the violin on the installment plan? $793.69
   h. What is the finance charge? $142.45
   i. If Lillian models her payment plan as an arithmetic sequence, give the first term a_1 and the common ratio d. First term = 97.69; common difference = 58

18. The following inequalities give information on your credit scores. Let x represent your credit score.

   - If $x > 700$, your credit score is excellent.
   - If $680 < x < 700$, your credit score is good.
   - If $620 < x < 680$, your credit score should be watched carefully.
   - If $580 < x < 620$, your credit score is low.
   - If $x < 580$, your credit score is poor.

   If Mary Ann's credit score is low, but she receives 40 points for paying off some delinquent debts, is it possible that her credit rating is now good? Explain. See margin.

19. Samantha's grandfather is debt-free—he bought his car and his house without taking out a loan. He saved and paid cash. He wanted to take out a loan to buy Samantha a car for college graduation. The bank turned him down. Explain why. See margin.

20. The following arithmetic sequence models an installment purchase. Give the down payment, monthly payment, and length of the plan. 400, 510, 620, 730, 840, 950, 1,060. Down payment = $400; Monthly payment = $110; length of plan 6 months