Solved Problems

4.1 **Net Working Capital.** Winston Corporation has the following selected assets and liabilities:

Cash	$15,000
Accounts receivable	$20,000
Inventory	$37,000
Land	$70,000
Building	$190,000
Goodwill	$26,000
Accounts payable	$13,000
Salaries payable	$7,000
Taxes payable	$19,000
Mortgage payable	$80,000
Common stock	$100,000
Retained earnings	$82,000

Determine the company's net working capital.

SOLUTION

CURRENT ASSETS		
Cash	$15,000	
Accounts receivable	20,000	
Inventory	37,000	$72,000
CURRENT LIABILITIES		
Accounts payable	$13,000	
Salaries payable	7,000	
Taxes payable	19,000	39,000
Net working capital		$33,000

4.2 **Delay in Cash Receipt.** Blake Corporation receives average daily cash receipts of $140,000. The finance manager has determined that the time period between the mailing of a check and its actual availability for corporate use is 4 days. What is the amount of cash being tied up because of the delay?

SOLUTION

$$4 \text{ days} \times \$140{,}000 = \$560{,}000$$

4.3 **Lockbox.** It typically takes Lawrence Corporation 8 days to receive and deposit customer remissions. Lawrence is considering a lockbox system and anticipates that the system will reduce the float time to 5 days. Average daily cash receipts are $220,000. The rate of return is 10 percent.

(*a*) What is the reduction in cash balances associated with implementing the system? (*b*) What is the rate of return associated with the earlier receipt of the funds? (*c*) What should be the maximum monthly charge associated with the lockbox proposal?

SOLUTION

(*a*) $\$220{,}000 \times 3 \text{ days} = \$660{,}000$

(*b*) $0.10 \times \$660{,}000 = \$66{,}000$

(*c*) $\dfrac{\$66{,}000}{12} = \$5{,}500$

4.4 **Lockbox.** Doral Corporation is considering a lockbox arrangement that will cost $216,000 per year. Average daily collections are $450,000. As a result of the system, the float time will be reduced by 3 days. The rate of return is 14 percent. Should the lockbox arrangement be instituted?

SOLUTION

Cost	$216,000
Return on freed cash ($0.14 \times 3 \times \$450{,}000$)	189,000
Disadvantage of lockbox	$ 27,000

The lockbox should not be used.

4.5 Dividing of Region. Boston Corporation has an arrangement with XYZ Bank in which the bank handles \$5 million a day in collections but requires a \$420,000 compensating balance. The company is considering withdrawing from the arrangement and dividing its southern region so that two other banks will handle the business instead. Bank S will handle \$3 million a day of collections and require a \$450,000 compensating balance, and bank T will handle the other \$2 million a day and require a compensating balance of \$350,000. By dividing the southern region, collections will be accelerated by $\frac{1}{2}$ day. The rate of return is 17 percent. Should the southern region be divided?

SOLUTION

Accelerated cash inflow \$5 million per day $\times \frac{1}{2}$ day	\$2,500,000
Incremental compensating balance required	380,000
Increased cash flow	\$2,120,000
Rate of return	$\times 0.17$
Net annual savings	\$ 360,400

Yes, the southern region should be divided, as doing so will save the company \$360,400 per year.

4.6 Average Cash Balance. Dane Company's weekly average cash balances are:

Week	Average Cash Balance
1	\$15,000
2	19,000
3	12,000
4	17,000
Total	\$63,000

(*a*) What is the monthly average cash balance? (*b*) Assuming an annual interest rate of 15 percent, what is the monthly rate of return earned on the average cash balance?

SOLUTION

(*a*) $$\frac{\$63,000}{4} = \$15,750$$

(*b*) $$\$15,750 \times (0.15 \div 12) = \$196.88$$

4.7 Book Balance versus Bank Balance. Company P writes checks averaging \$30,000 per day that require 4 days to clear. By what amount will its book balance be less than its bank balance?

SOLUTION

$$\$30,000 \times 4 \text{ days} = \$120,000$$

4.8 Opportunity Cost of Not Taking Discount. What is the opportunity cost of not taking a discount when the terms are 2/20, net/45?

SOLUTION

$$\text{Opportunity cost} = \frac{\text{discount percent}}{100 - \text{discount percent}} \times \frac{360}{N} = \frac{2}{98} \times \frac{360}{25} = 29.4\%$$

4.9 Optimal Cash Transaction Size. Green Corporation anticipates a cash requirement of $1,000 over a 1-month period. It is expected that cash will be paid uniformly. The annual interest rate is 24 percent. The transaction cost of each borrowing or withdrawal is $30. (*a*) What is the optimal transaction size? (*b*) What is the average cash balance?

SOLUTION

(*a*) The optimum transaction size is:

$$C = \sqrt{\frac{2bT}{i}} = \sqrt{\frac{2(30)(1{,}000)}{0.24 \div 12^a}} = \sqrt{\frac{60{,}000}{0.02}} = \$1{,}732.05$$

(*b*) The average cash balance is:

$$\frac{C}{2} = \frac{\$1{,}732.05}{2} = \$866.03$$

[a] $\text{Monthly interest rate} = \dfrac{0.24 \text{ annual interest rate}}{12 \text{ months}} = 0.02$

4.10 The Miller–Orr Model. Heavenly Company has experienced a stochastic demand for its product, which results in fluctuating cash balances randomly. The following information is supplied:

Fixed cost of a securities transaction	$100
Variance of daily net cash flows	$1,000
Daily interest rate on securities (6%/360)	0.000167

Determine the optimal cash balance, upper and lower limit of cash needed, and average cash balance.

SOLUTION

The optimal cash balance, the upper limit of cash needed, and the average cash balance follow:

$$z = \sqrt[3]{\frac{3(100)(1000)}{4(0.000167)}}$$

$$= \sqrt[3]{449{,}910{,}000{,}000} = \$7{,}663$$

The optimal cash balance is $7,663. The upper limit is $22,989 ($3 \times \$7{,}663$). The lower limit is zero. The average cash balance is

$$\frac{(\$7{,}663 + \$22{,}989)}{3} = \$10{,}217.33$$

When the upper limit of $22,989 is reached, $15,326 of securities ($22,989 − $7,663) will be purchased to bring you to the optimal cash balance of $7,663. When the lower limit of zero dollars is reached, $7,663 of securities will be sold to again bring you to the optimal cash balance of $7,663.

4.11 Date of Cash Receipt. The terms of sale are 3/20, net/45, May 1 dating. What is the last date the customer may pay in order to receive the discount?

SOLUTION

May 20.

4.12 Average Investment in Accounts Receivable. Milch Corporation sells on terms of net/90. Their accounts receivable are on average 20 days past due. If annual credit sales are $800,000, what is the company's average investment in accounts receivable?

SOLUTION

$$\frac{90 + 20}{360} \times \$800{,}000 = \$244{,}444$$

4.13 Average Investment in Accounts Receivable. The cost of product X is 30 percent of its selling price, and the carrying cost is 8 percent of selling price. Accounts are paid on average 60 days after sale. Sales per month average $25,000. What is the investment in accounts receivable?

SOLUTION

$$\text{Accounts receivable} = 2 \text{ months} \times \$25{,}000 \text{ sales} = \$50{,}000$$
$$\text{Investment in accounts receivable} = \$50{,}000 \times 0.38 = \$19{,}000$$

4.14 Average Investment in Accounts Receivable. Levine Corporation has accounts receivable of $400,000. Its manufacturing cost approximates 35 percent of selling price. The before-tax profit margin is 16 percent, and the inventory carrying cost is 4 percent of the selling price. Sales commissions are 7 percent of sales. What is Levine's average investment in accounts receivable?

SOLUTION

$$\text{Average investment in accounts receivable} = \$400{,}000(0.35 + 0.04 + 0.07) = \$400{,}000(0.46) = \$184{,}000$$

4.15 Average Investment in Accounts Receivable. Ajax Company's credit sales are $300,000, and the collection period is 90 days. Cost is 70 percent of selling price. Determine Ajax's average investment in accounts receivable.

SOLUTION

$$\text{Accounts receivable turnover} = \frac{360}{90} = 4$$
$$\text{Average accounts receivable} = \frac{\$300{,}000}{4} = \$75{,}000$$
$$\text{Average investment in accounts receivable} = \$75{,}000 \times 0.70 = \$52{,}500$$

4.16 Discount Policy. Stevens Company presents the following information:

Current annual credit sales:	$24,000,000
Collection period:	3 months
Terms:	net/30
Rate of return:	18%

The company is considering offering a 4/10, net/30 discount. It anticipates that 30 percent of its customers will take advantage of the discount. The collection period is expected to decrease to 2 months. Should the discount policy be implemented?

SOLUTION

Current average accounts receivable balance ($24,000,000/4)	$6,000,000
Average accounts receivable balance—after change in policy ($24,000,000/6)	4,000,000
Reduction in average accounts receivable	$2,000,000
Interest rate	× 0.18
Rate of return	$ 360,000
Cost of discount (0.30 × $24,000,000 × 0.04)	$ 288,000
Advantage of discount policy ($360,000 − $288,000)	$ 72,000

Yes, Stevens Company should implement the discount policy.

4.17 Credit Policy. Nelson Corporation reports the following information:

Selling price per unit	$70
Variable cost per unit	$45
Fixed cost per unit	$15
Annual credit sales	400,000 units
Collection period	3 months
Rate of return	19%

The company is considering easing its credit standards. If it does, the following is expected to result: Sales will increase by 25 percent; collection period will increase to 4 months; bad debt losses are anticipated to be 4 percent on the incremental sales; and collection costs will increase by $34,000.

Should the proposed relaxation in credit standards be implemented?

SOLUTION

Incremental profitability:

Increased unit sales (400,000 × 0.25)	100,000
Contribution margin per unit ($70 − $45)	× $25
Incremental profit	$2,500,000

Increased bad debts:

Incremental dollar sales (100,000 × $70)	$7,000,000
Uncollectibility percentage	× 0.04
Additional bad debts	$ 280,000

To determine the opportunity cost of the increased investment in accounts receivable, we first need to calculate the new average unit cost, as follows:

	Units	Unit Cost	Total Cost
Present	400,000	$60	$24,000,000
Increment	100,000	$45	4,500,000
Total	500,000		$28,500,000

$$\text{New average unit cost} = \frac{\$28{,}500{,}000}{500{,}000} = \$57$$

Additional cost:

Investment in average accounts receivable [(credit sales/turnover) × (unit cost/selling price)]	
After change in policy [($35,000,000/3) × ($57/$70)]	$9,500,000
Current [($28,000,000/4) × ($60/$70)]	6,000,000
Incremental	$3,500,000
Rate of return	× 0.19
Opportunity cost	$ 665,000

Net advantage/disadvantage of proposal:

Additional profitability		$2,500,000
Less: Increased bad debts	$280,000	
Increased collection costs	34,000	
Opportunity cost	665,000	979,000
Net advantage		$1,521,000

Thus, the Nelson Corporation would benefit from relaxing its credit policy as proposed.

4.18 **Credit Policy.** Simon Corporation is evaluating a relaxation of its credit policy. At present, 70 percent of sales are on credit and there is a gross margin of 20 percent. Additional data are:

	Current	Anticipated
Sales	$500,000	$640,000
Credit sales	$410,000	$520,000
Collection expenses	3% of credit sales	4% of credit sales
Collection period	72 days	90 days

Using 360 days in a year, answer the following questions: (*a*) What is the change in gross profit associated with the proposal? (*b*) What is the incremental change in collection expenses? (*c*) What is the change in average accounts receivable?

SOLUTION

(*a*)	Incremental credit sales	$110,000
	Gross profit rate	× 0.20
	Increase in gross profit	$ 22,000
(*b*)	Collection expenses with proposal (0.04 × $520,000)	$ 20,800
	Collection expenses currently (0.03 × $410,000)	12,300
	Increase in collection expenses	$ 8,500

(*c*) Average accounts receivable after change in policy are:

Credit sales/accounts receivable turnover ($520,000/4)	$130,000
Current average accounts receivable ($410,000/5)	82,000
Increase in average accounts receivable	$ 48,000

4.19 Sales Campaign. Jones Corporation is considering a sales campaign in which it will offer credit terms of 3/15, net/80. The finance manager expects that the collection period will increase from 90 days to 110 days. Information before and during the proposed campaign follows:

	% of Sales before Campaign	% of Sales during Campaign
Cash sales	20	10
Payment from		
1–15	35	25
16–120	45	65

The sales campaign is expected to raise sales from $5 million to $6 million. The gross profit rate is 30 percent and the rate of return is 16 percent. Sales discounts are given on cash sales.

Should the sales campaign be initiated?

SOLUTION

	Without Sales Campaign		With Sales Campaign	
Gross profit		$1,500,000		$1,800,000
Sales subject to discount				
0.55 × $5,000,000	$2,750,000			
0.35 × $6,000,000			$2,100,000	
Sales discount	× 0.03	−82,500	× 0.03	−63,000
Investment in average accounts receivable				
(90/360) × $5,000,000 × 0.7	$ 875,000			
(110/360) × $6,000,000 × 0.7			$1,283,333	
Rate of return	× 0.16	−140,000	× 0.16	−205,333
Net profit		$1,277,500		$1,531,667

The sales campaign should be implemented because it results in an incremental profit of $254,167.

4.20 Credit Policy. Wilder Corporation is considering granting credit to currently limited customers or no-credit customers. The following information is given:

Category	Bad Debt Percentage	Collection Period	Credit Terms	Incremental Annual Sales Accompanying Relaxation in Credit Standards
A	3%	20 days	Full	$250,000
B	6%	45 days	Restricted	$540,000
C	10%	90 days	No credit	$800,000

Gross profit approximates 12 percent of sales. The rate of return is 18 percent. Should credit be extended to categories B and C?

SOLUTION

	Category B		Category C	
Gross profit				
$540,000 × 0.12				
$800,000 × 0.12		$64,800		$96,000
Less: Increased bad debts				
$540,000 × 0.06		−32,400		
$800,000 × 0.10				−80,000
Incremental investment in average accounts receivable				
(45/360) × 0.88 × $540,000	$59,400			
(90/360) × 0.88 × $800,000			$176,000	
Rate of return	× 0.18		× 0.18	
Opportunity cost		−10,692		−31,680
Net profit		$21,708		−$15,680

Credit should be extended only to category B.

4.21 Materials Cost. Grason Corporation purchases 3,000 units of a raw material at a list price of $5 each. The supplier offers a quantity discount of 4 percent. What is the material cost of the item?

SOLUTION

Acquisition cost (3,000 × $5)	$15,000
Less: Discount (0.04 × $15,000)	600
Net cost	$14,400

4.22 Average Investment in Inventory. West Corporation orders 4,000 units of a product at the beginning of the period for $7 each. What is West Corporation's average investment in inventory?

SOLUTION

Average inventory ($Q/2 = 4{,}000/2$)	2,000 units
Unit cost ($)	$\times 7$
Average investment	$14,000

4.23 Ordering Cost. Charles Corporation uses 8,500 units per year. Each order is for 200 units. The cost per order is $13. What is the total ordering cost for the year?

SOLUTION

$$\frac{8{,}500}{200} \times \$13 = \$552.50$$

4.24 Economic Order Quantity. Luster Corporation presents the following data: Usage is 400 units per month, cost per order is $20, and carrying cost per unit is $6.

Given these data, answer the following questions: (*a*) What is the economic order quantity? (*b*) How many orders are required each month? (*c*) How often should each order be placed?

SOLUTION

(*a*) $$\text{EOQ} = \sqrt{\frac{2SP}{C}} = \sqrt{\frac{2(400)(20)}{6}} = \sqrt{\frac{16{,}000}{6}} = 52 \text{ (rounded)}$$

(*b*) $$\frac{S}{\text{EOQ}} = \frac{400}{52} = 8 \text{ (rounded)}$$

(*c*) $$\frac{31}{8} = \text{every 4 days}$$

4.25 Stockout Cost. Boston Corporation uses 30,000 units. Each order placed is for 1,500 units. The stockout units is 300. Management is willing to accept a stockout probability of 40 percent. The stockout cost per unit is $3.20. What is the total stockout cost?

SOLUTION

$$\text{Stockout cost} = \frac{\text{usage}}{\text{order quantity}} \times \text{stockout units} \times \text{unit stockout cost} \times \text{probability of stockout}$$

$$= \frac{30{,}000}{1{,}500} \times 300 \times \$3.20 \times 0.4 = \$7{,}680$$

4.26 Economic Order Point. Met Corporation reports the following data regarding one of its inventory items: Usage is 5,000 units per month, EOQ is units, and lead time is $\frac{1}{2}$ month. The stockout acceptance factor is 1.29, which represents an acceptable stockout percentage of 10 percent.

Determine the economic order point.

SOLUTION

$$\text{EOP} = SL + z\sqrt{S(\text{EOQ})(L)}$$

$$= (5{,}000)(\tfrac{1}{2}) + 1.29\sqrt{5{,}000(100)(\tfrac{1}{2})}$$

$$= 2{,}500 + 1.29\sqrt{250{,}000} = 2{,}500 + 1.29(500) = 3{,}145$$

4.27 Inventory Management. XYZ Appliance Store sells an average of 160 units per month. Each order the store places is for 300 units. The cost per unit is \$5. The cost per order is \$12. Carrying cost is \$0.15 per dollar invested per year. The rate of return is 18 percent. The tax rate is 46 percent.

(*a*) What is the investment in average inventory? (*b*) What is the annual ordering cost? (*c*) What is the annual holding cost? (*d*) What is the opportunity cost of holding inventory? (*e*) What is the total cost of the inventory excluding the purchase price?

SOLUTION

(*a*)
$$\text{Average inventory} = \frac{Q}{2} = \frac{300}{2} = 150$$
$$\text{Investment in average inventory} = 150 \times \$5 = \$750$$

(*b*)
$$\text{Ordering cost} = \frac{S}{Q} \times P = \frac{160 \times 12}{300} \times \$12 = \$76.80$$

(*c*)
$$\text{Holding cost} = \text{carrying cost} \times \text{investment in average inventory}$$
$$= 0.15 \times \$750 = \$112.50$$

(*d*)
$$\text{Opportunity cost} = \text{rate of return} \times \text{investment in average inventory}$$
$$= 0.18 \times \$750 = \$135$$

(*e*)
$$\text{Inventory cost (excluding purchase price)}$$
$$= (100 - \text{tax rate}) \times (\text{ordering cost} + \text{holding cost}) + \text{opportunity cost}$$
$$= 0.54(\$76.80 + \$112.50) + \$135 = \$237.22$$

4.28 Optimum Inventory Level. Saft Corporation is considering changing its inventory policy. At present, the inventory turns over 12 times per year. Variable costs are 60 percent of sales. The rate of return is 21 percent. Sales and inventory turnover data follow:

Sales	Turnover
\$800,000	12
\$870,000	10
\$950,000	7
\$1,200,000	5

Determine the inventory level that results in the greatest net savings.

A	B	C	D	E	F
Sales	Turnover	Average Inventory (A ÷ B)	Opportunity Cost Associated with Additional Inventory[a]	Additional Profitability[b]	Net Savings (E − D)
\$800,000	12	\$66,666			
\$870,000	10	\$87,000	\$4,270	\$28,000	\$23,730
\$950,000	7	\$135,714	\$10,230	\$32,000	\$21,770
\$1,200,000	5	\$240,000	\$21,900	\$100,000	\$78,100

[a] Incremental average inventory balance × 0.21.
[b] Incremental sales × 0.40

The inventory level that results in the greatest net savings is 240,000 units.

4.29 Lockbox System. Tunequip, Inc., is a wholesale distributor of specialized audio equipment, tapes, and records. Annual sales are projected at $27 million for the 19X1 fiscal year, and the average accounts receivable balance is estimated at $2.5 million. The average invoice size is $1,000. Customers pay their accounts by check, which are mailed to corporate headquarters in Florida.

The finance manager of Tunequip is examining the firm's cash-handling techniques to find ways to reduce borrowing requirements and financing costs. One alternative under consideration is the establishment of a lockbox system to handle collections from customers in the western United States. Those customers are expected to account for $10.8 million of Tunequip's total projected sales in 19X1. Tunequip could acquire the use of the funds a day earlier if the western customers mailed their checks to a post office box in Utah. The Utah National Bank would process the payments mailed to the post office box; they would deposit the checks in Tunequip's account in Utah National, wire transfer the money to the Florida National Bank (Tunequip's primary bank), and send the payment information by mail. Utah National Bank's charge for operating the lockbox system would be a flat fee of $80 per month plus $0.10 for each paid invoice handled; in addition the Utah bank would require Tunequip to maintain a $5,000 minimum cash balance with the bank.

There would be no change in Tunequip's relationship with Florida National Bank. The finance manager estimates that Tunequip would be able to borrow funds from Florida National Bank during 19X1 at an interest rate of 9 percent.

(*a*) If Tunequip, Inc., established the lockbox system for its western customers, calculate (1) the annual cost of operating the lockbox system, and (2) the dollar amount of the change in the level of accounts receivable and the reduction in borrowing which will result from this system.

(*b*) What factors other than those referred to in (*a*) should Tunequip consider in its evaluation of the lockbox system?

(*c*) Do your calculations support the establishment of a lockbox system for Tunequip's western customers? Explain your answer. (CMA, adapted.)

SOLUTION

(*a*) (1) The annual cost of operating the lockbox system is:

$$\text{Estimated number of invoices} = \frac{\text{western sales}}{\text{average invoice size}}$$

$$= \frac{\$10{,}800{,}000}{\$1{,}000/\text{invoice}} = 10{,}800 \text{ invoices}$$

Estimated handling fee (10,800 × $0.10)	$1,080
Fixed fee (12 months × $80)	960
Cost of compensating balance ($5,000 × 0.09)	450
Estimated annual operating cost	$2,490

(2) The use of the lockbox will permit Tunequip to acquire the use of the funds 1 day earlier. This will have the effect of reducing the average accounts receivable by 1 day's sales and reduce the need for borrowing by the same amount. This amounts to $30,000 as is shown below.

$$\text{Reduction in average accounts receivable} = \frac{\text{western sales}}{\text{days in year}} = \frac{\$10{,}800{,}000}{360} = \$30{,}000$$

(*b*) Other factors to be considered when changing to the lockbox system include the following: What is the cost of the wire transfers? Will there be a delay in recording receivables thus affecting customer attitudes? Will customers be upset because their lockbox checks will be cashed earlier? What is the impact of changes on costs in the main office? What other alternatives, such as tightening credit terms and slowing payments, of cash management can be used to reduce borrowing needs?

(*c*) The financial manager makes the following recommendation:

Reduction in borrowing	$30,000
Interest rate	0.09
Annual savings	$ 2,700
Estimated annual operating cost	2,490
Estimated savings	$ 210

These projections give marginal support for the establishment of a lockbox because annual savings exceed costs by $210. However, the other items outlined in (*b*) should be considered in arriving at a final decision.

4.30 Credit Policy. The Heap Corporation finds itself with excess manufacturing capacity. The company has lost a portion of its share of the market over the past several years. This, in part, may be due to Heap having a more conservative credit policy than is common in the industry.

	Heap Corporation	**Industry**
Terms	2/10, net/30	2/10, net/60
Credit granted as percent of applicants by credit class		
A	100%	100%
B	100%	100%
C	25%	70%
D	11%	40%
E	2%	20%
F	0%	5%
Average collection period	30 days	60 days

The vice-president for finance recommends that Heap Corporation relax its credit standards, with the expectation that sales and profitability will increase. Staff studies show that credit sales can be expected to increase to $92 million, bad debt losses will be approximately $2.4 million, inventory will need to be increased by $5.67 million, and average collection of accounts receivable will be 60 days. The 19X2 Heap income statement is given below.

Heap Corporation
Income Statement
(In Thousands of Dollars)
For Year Ended December 31, 19X2

Revenue		
Credit sales	$72	
Cash sales	8	$80
Costs and other charges		
Manufacturing expenses[a]	$57.4	
Administrative expenses[b]	3.0	
Selling expenses[c]	9.6	70
Net income before taxes		$10
Federal income tax		5
Net income		$ 5

[a] Materials and supplies	$10.0
Labor	40.0
Fixed overhead	7.4
	$57.4
[b] All fixed	$ 3.0
[c] Selling expenses	
Variable expense	$ 8.0
Bad debt loss estimate	1.6
	$ 9.6

(*a*) Estimate the accounts receivable balance at December 31, 19X2. (*b*) Assuming total assets at December 31, 19X2 equal 40 million dollars: (1) What is Heap Corporation's return on corporate assets? (2) What is the asset turnover? (*c*) What profit margin will Heap Corporation earn if the predictions are correct? (*d*) What return should be expected on corporate assets if the policy is adopted and the predictions are correct? (*e*) Will the company be better off financially if the proposed change in credit policy is made? Explain your answer. (CMA, adapted.)

SOLUTION

(*a*)

Credit sales	$72,000,000
Allowance for bad debts	$ 1,600,000
Net credit sales	$70,400,000
Average collection period	30 days
Accounts receivable turnover	12 times

$$\text{Net receivables balance, Dec. 31, 19X2} = \frac{\$70,400,000}{12} = \$5,866,667$$

(*b*) (1)
$$\text{Return on corporate assets} = \frac{\text{net income}}{\text{total assets}} = \frac{5,000,000}{40,000,000} = 12.5\%$$

(2)
$$\text{Asset turnover} = \frac{\text{sales}}{\text{assets}} = \frac{80,000,000}{40,000,000} = 2$$

(*c*)

Heap Corporation
Pro Forma Income Statement
(In Millions of Dollars)
For Year Ended Dec. 31, 19X3

Credit sales		$92.00	
Cash sales		8.00	$100.00
Manufacturing expense			
Materials and supplies	$12.50		
Labor	50.00		
Fixed overhead	7.40	$69.90	
Administrative expense		3.00	
Selling expense			
Variable	$10.00		
Bad debt loss estimate	2.40	12.40	85.30
Net income before taxes			$ 14.70
Federal income tax			7.35
Net income			$ 7.35

(*d*)

Total assets	
Prior assets	$40,000,000
Increase in receivables[a]	9,066,666
Increase in inventory	5,670,000
	$54,736,666

[a]
$$\$92,000,000 \text{ (credit sales)}$$
$$\underline{2,400,000} \text{ (bad debt)}$$
$$\$89,600,000 \text{ (net credit sales)}$$
$$\frac{360}{60} = 6 \quad \text{(receivables turnover)}$$
$$\frac{\$89,600,000}{6} = \$14,933,333$$
$$\text{Change in receivables} = \$14,933,333 - \$5,866,667 = \$9,066,666$$

$$\text{Return on assets} = \frac{\$7,350,000}{\$54,736,666} = 13.4\%$$

(*e*) Since the overall return on assets has increased after the credit policy change, the company may be considered to be in better financial condition. However, it should be noted that the nature and cost of financing the current asset expansion have not been considered. If the incremental financing is available only at a comparatively high cost, the change in credit policy may not be desirable.