A. From sales to profit

MANAGMNT 494BI | September 16, 2026 | Work individually | 35–45 minutes total

Before choosing a strategy, learn to explain the numbers. This exercise uses invented results for one simplified sensor company. It is not a real Courier or a set of live Capstone decisions. A calculator is sufficient; a spreadsheet is optional. Keep your calculations and explain what each result means.

Use the Capstone 2.0 Glossary & Guidance at langenkamp.io/capstone/. Dollar amounts below are in $ thousands unless marked per unit. Quantities are in thousands of units. Thus 800 means 800,000 sensors; a $30 price remains $30 per sensor.

Income statement input	Amount
Units sold / selling price	800 thousand / $30 per unit
Material cost of units sold	8,000
Labor cost of units sold	5,000
Inventory carrying expense	480
Annual depreciation	1,600
SG&A: R&D + promotion + sales + administration	720 + 1,200 + 1,200 + 800
Other operating expenses / profit sharing	0 / 0
Interest expense / tax expense	1,000 / 1,200

A1. Complete every row below. Write the formula, substitute the figures, and give your answer. Use the supplied tax expense of 1,200; do not calculate a new tax rate.

Calculation	Formula, working and answer
a. Sales revenue ($000)	_____
b. Variable costs, including carrying ($000)	_____
c. Contribution margin ($000)	_____
d. Contribution margin (%)	_____
e. Total SG&A ($000)	_____
f. EBIT ($000)	_____
g. Net profit ($000)	_____
h. Return on sales (%)	_____

A. Unit costs and contribution

Continue using the data and answers from Part A.

A2. Calculate material-plus-labor cost per sensor. Divide the combined material and labor costs by units sold. Give your answer in dollars per sensor.

A3. Calculate contribution per sensor BEFORE inventory carrying expense. Subtract your A2 answer from the selling price.

A4. Calculate contribution per sensor AFTER inventory carrying expense. Divide total contribution margin dollars from A1(c) by units sold.

A5. Explain why A3 and A4 differ. Identify the expense responsible for the difference.

A6. Explain why neither A3 nor A4 is net profit per sensor. Name at least two expenses that still need to be deducted.

B. Depreciation and transactions

This equipment example is separate from the company cash-flow exercise in Part D.

Equipment costs $24,000 thousand ($24 million), has zero residual value, and is depreciated using the straight-line method over 15 years. Assume a full year of depreciation.

B1. Calculate annual depreciation in $000. Show your formula.

B2. If the equipment is paid for entirely in cash at purchase, how much cash leaves the company at that time? Give your answer in $000.

B3. Is annual depreciation another cash payment for the equipment? Explain in one sentence.

B4. Classify EACH transaction below using one of these categories: revenue; operating expense; asset purchase; financing transaction. Write the category in the right-hand column.

Transaction	Your classification
a. Selling sensors	_____
b. Advertising	_____
c. Buying an assembly line	_____
d. Borrowing from a bank	_____
e. Depreciation	_____
f. Repaying loan principal	_____

B5. Explain why borrowing from a bank is not sales revenue.

B6. Explain how repaying loan principal differs from paying interest.

C. Read the balance sheet

All amounts are $000. These are the company's year-end balances.

Balance sheet item	Amount ($000)
Cash	3,000
Accounts receivable	3,000
Inventory	4,000
Gross plant and equipment	24,000
Accumulated depreciation	6,000
Accounts payable	3,000
Current debt	4,000
Long-term debt	7,000
Common stock	10,000
Retained earnings	4,000

C1. Calculate each amount. Show your working. Subtract accumulated depreciation from gross plant; do not count it as a liability. Current liabilities here are accounts payable plus current debt.

Calculation	Working and answer
a. Current assets	_____
b. Net plant and equipment	_____
c. Total assets	_____
d. Current liabilities	_____
e. Total liabilities	_____
f. Total equity	_____
g. Net working capital	_____
h. Current ratio (times)	_____

C. Interpret the balance sheet

Use your calculations from C1.

C2. Verify that total assets = total liabilities + total equity. Write the three calculated values in this equation.

C3. Does retained earnings of 4,000 mean that 4,000 in cash is set aside? Explain.

C4. Why does a current ratio above 1 not guarantee that tomorrow's bills can be paid?

D. Reconcile profit and cash

Use net profit from A1(g). All amounts are $000.

Cash-flow information for the year	Amount ($000)
Beginning cash	4,000
Net profit / depreciation	Your A1(g) result / 1,600
Increase in accounts receivable	800
Increase in inventory	1,200
Increase in accounts payable	400
Plant purchases paid in cash this year	6,000
New borrowing / principal repaid	3,000 / 800
Dividends / new shares / other cash adjustments	0 / 0 / 0

Use annual depreciation of 1,600 for the company's asset portfolio. Do not recalculate it from this year's plant purchases. Do not add the separate equipment purchase from Part B.

D1. Calculate cash from operations using: net profit + depreciation – increase in accounts receivable – increase in inventory + increase in accounts payable.

D2. Calculate each remaining cash-flow amount. Use positive numbers for cash inflows and negative numbers for outflows.

Calculation	Working and answer
a. Investing cash flow	_____
b. Financing cash flow	_____
c. Net change in cash	_____
d. Ending cash	_____

D3. Compare D2(d) with cash on the Part C balance sheet. Do the amounts match?

D4. Why is depreciation added back when reconciling net profit to operating cash flow?

D5. Why does an increase in inventory reduce operating cash flow?

D6. Why does this profitable company end the year with less cash than it started with? Use your calculated cash flows.

E. Calculate and interpret ratios

Use sales, SG&A and net profit from Part A and year-end assets/equity from Part C. Report percentages to two decimal places; report turnover and leverage as times. Keep unrounded values for E2.

E1. Substitute the company's figures into each formula and calculate the result.

Measure and formula	Working and answer
a. ROS = net profit ÷ sales	_____
b. Asset turnover = sales ÷ total assets	_____
c. ROA = net profit ÷ total assets	_____
d. Leverage = total assets ÷ total equity	_____
e. ROE = net profit ÷ total equity	_____
f. SG&A-to-sales = SG&A ÷ sales	_____

E2(a). Verify ROS × asset turnover = ROA. Convert percentages to decimals and use unrounded values. Show your working.

E2(b). Verify ROA × leverage = ROE. Use unrounded decimals. Show your working.

E3. Which ratio measures profit earned per dollar of sales?

E4. Which ratio measures sales generated per dollar of assets?

E5. Which ratios can rise when equity shrinks, even if operations have not improved? Explain why.

F. Plan production

This is a separate next-round planning example. All quantities are thousands of units.

Planning input	Quantity (000 units)
Opening inventory	100
Forecast sales	900
Desired ending inventory	100
First-shift capacity	800

Do not use the dollar inventory balance from Part C in this unit calculation.

F1. Calculate required production: forecast sales + desired ending inventory – opening inventory.

F2. Calculate utilization as a percentage of first-shift capacity: required production ÷ first-shift capacity × 100.

F3. Is second-shift production needed? If so, how many thousand units must be produced on the second shift?

F4. Suppose actual sales are only 750 thousand units, but you produce the F1 amount. Calculate ending inventory: opening inventory + production – actual sales.

F5. Compared with the original plan, what does the extra inventory mean for cash tied up and inventory carrying costs? Explain; no dollar calculation is required.

F6. Can capacity purchased during this round solve a capacity shortfall in the SAME round? Explain when the new capacity becomes available.

G. Explain what the numbers mean

Write 60–100 words. Your response must address all three prompts below.

1. Distinguish revenue, contribution margin, net profit and cash.

2. Describe one way a company could increase sales while worsening its finances.

3. Support your explanation with at least two numbers from your calculations.

Before you hand in your work

Check that you have answered every assigned subpart, shown formulas and working, and labelled dollars, $000, unit quantities, percentages and times correctly.

Do not count SG&A component budgets twice. Distinguish expenses from cash payments. Your instructor will specify which sections to complete, the collection method and the deadline.

Reference: langenkamp.io/capstone/ and the linked official Capstone 2.0 Team Member Guide. The glossary is a teaching companion; your configured simulation governs live decisions. Your instructor will specify collection method and deadline. No team work is required.