

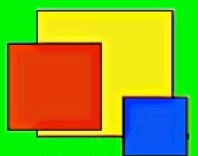
ACCOUNTING



EZ Learn Accounting

Grade 11

Written by Barbara Williamson



EZ Learn

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6. Periodic inventory system

By the end of this chapter you should be able to

- Differentiate between the periodic and perpetual inventory systems.
- Calculate cost of sales, gross profit and profit mark-up using the periodic inventory system.
- Record the transactions of a business using the periodic inventory system in the subsidiary journals and the general ledger.

6.1. Baseline assessment



1. What is the perpetual inventory system?
2. What is "cost of sales"?
3. Why is a cost of sales column used in the CRJ and DJ?
4. How is gross profit calculated?
5. Given sales and cost of sales, how is profit mark-up calculated?

| 😊 | 😐 | 😞 |
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6.2. Introductory role play - Smartie Traders



You will need: 2 plastic packets, a small box of Smarties, 2 sticky labels, a pencil and a calculator.

You are a business that buys and sells special Smarties that can stimulate different emotions. Since you sell many Smarties each day, you don't have time to record the cost price of each sale.

1. Place some Smarties in a bag, and label it "stock".
2. Record the time at the top of the stock sheet below.
3. Count out how many Smarties you have in your packet, and record it below.
4. Calculate the value of this stock (your "opening stock") by multiplying the quantity of each type by its price, then adding all these values together to see the total value of your stock.

Stock sheet at (time)

| Type of Smarties | Quantity | Price | Value |
|-------------------------------|----------|-------|-------|
| Rejuvenating Smarties (green) | | R1,50 | |
| Love Smarties (red) | | R2,00 | |
| Clever Smarties (yellow) | | R1,50 | |
| Calming Smarties (blue) | | R3,50 | |
| Energising Smarties (purple) | | R3,00 | |
| Happy Smarties (pink) | | R2,50 | |
| Creative Smarties (orange) | | R1,00 | |
| Sleepy Smarties (brown) | | R0,50 | |
| TOTAL | | | |

5. Purchase some more stock – the additional Smarties you have. Count these and draw up the invoice you would have received with them, then add them to your stock bag.

| <h2 style="margin: 0;">Invoice</h2> | | | No. 127 |
|--|----------|-------|----------------|
| To: Smartie Traders Bought from: Smarties Suppliers | | | |
| Item | Quantity | Price | Amount |
| Rejuvenating Smarties (green) | | R1,50 | |
| Love Smarties (red) | | R2,00 | |
| Clever Smarties (yellow) | | R1,50 | |
| Calming Smarties (blue) | | R3,50 | |
| Energising Smarties (purple) | | R3,00 | |
| Happy Smarties (pink) | | R2,50 | |
| Creative Smarties (orange) | | R1,00 | |
| Sleepy Smarties (brown) | | R0,50 | |
| TOTAL | | | |

6. It is now time to sell some stock. Transfer a handful of Smarties to your second plastic bag, label it "stock sales", and give it to your educator.
7. You have now sold some stock, but have not recorded what you sold! How could you calculate the cost of sales from the information that you do have?

8. You now need to do another stock take – count the Smarties left in your stock bag, and enter this on your stock sheet below. Calculate the value of this stock on hand (your "closing stock").

| Stock sheet at (time) | | | |
|-------------------------------|----------|-------|-------|
| Type of Smarties | Quantity | Price | Value |
| Rejuvenating Smarties (green) | | R1,50 | |
| Love Smarties (red) | | R2,00 | |
| Clever Smarties (yellow) | | R1,50 | |
| Calming Smarties (blue) | | R3,50 | |
| Energising Smarties (purple) | | R3,00 | |
| Happy Smarties (pink) | | R2,50 | |
| Creative Smarties (orange) | | R1,00 | |
| Sleepy Smarties (brown) | | R0,50 | |
| TOTAL | | | |

6. Periodic inventory system

9. Calculate your cost of sales below:

| Type of Smarties | Quantity of opening stock (1 st stock sheet – see no. 4) | Quantity of purchases (shown on invoice – see no. 5) | Quantity of closing stock (2 nd stock sheet – see no. 8) | Quantity of stock sold (4 + 5 – 8) | Price | Value of stock sold |
|-------------------------------|--|---|--|---------------------------------------|-------|---------------------|
| Rejuvenating Smarties (green) | | | | | R1,50 | |
| Love Smarties (red) | | | | | R2,00 | |
| Clever Smarties (yellow) | | | | | R1,50 | |
| Calming Smarties (blue) | | | | | R3,50 | |
| Energising Smarties (purple) | | | | | R3,00 | |
| Happy Smarties (pink) | | | | | R2,50 | |
| Creative Smarties (orange) | | | | | R1,00 | |
| Sleepy Smarties (brown) | | | | | R0,50 | |
| TOTAL | | | | | | |

10. Now check your calculations by comparing your answers to the Smarties in your “stock sales” bag returned by your educator.

11. This calculation can be shown as part of a "trading statement" in the format below. Complete this trading statement for your activities this lesson, if all Smarties are sold at R5 each.

| | |
|--|----------------|
| Sales (Qty sold x R5) | |
| Cost of sales (stock for sale less closing stock) = (total value sold - see no. 9) | () |
| Opening stock (total value at beginning – see no. 4) | |
| Purchases (total value bought – see no. 5) | |
| Stock available for sale (Opening stock + purchases) | |
| Closing stock (total value left over – see no. 8) | () |
| Gross profit (Sales less cost of sales) | |

12. This system of calculating cost of sales only at the end of the year is known as the periodic inventory system. Based on what you have learnt of this system, tabulate the differences you are aware of between this and the perpetual inventory system.

[illegible]



Recording stock using the periodic inventory system

Up until now, you have recorded trading stock purchases and sales according to the **perpetual inventory system**, where the cost of goods sold is recorded at the time of sale. Technology has made this much easier with the use of barcoding and scanners to capture relevant information about stock movement.

However, this method can prove uneconomical for small businesses that sell low value goods and do not have scanning equipment. These businesses would then use the **periodic inventory system**, where the cost of sales is determined periodically, usually at the financial year-end. The stock available at the end of the year is subtracted from the opening stock and stock bought during the year to calculate that which has been sold (and would include any damaged or stolen goods as well).

Ledger accounts used

Trading stock

1. This **asset** account shows the value of goods available at the beginning of the year.
2. It is transferred to the Opening Stock account as a reversal at the beginning of the year, so that it can be included in the cost of sales calculation at the year end.
3. At the year end, closing stock will be entered in this account to show the value of stock on hand at that time.

| Trading stock | | | | | |
|------------------|-----|-----|------------------|----|-----|
| 1. Balance | b/d | XXX | 2. Opening stock | GJ | XXX |
| 3. Closing stock | GJ | XXX | | | |

Purchases

1. All purchases of trading stock during the year are recorded in this **expense** account, which replaces Cost of Sales and is used similarly to the way the Trading Stock account is used in the perpetual inventory system.
2. If goods are taken from stock by the owner, or given as a donation, this is recorded on the credit side of the Purchases account, as these transactions reduce the value of the goods sold.
3. Returns to creditors may be recorded directly in this account as they occur. Alternatively, returns may be recorded as Creditors Allowances instead (similar to how the Debtors' allowances account is used). In this case, Creditors Allowances (returns of stock to creditors) will be closed off to the Purchases account at the end of the year.
4. At the end of the year, Purchases is closed off to the Trading Account, as it forms part of Cost of Sales.

| Purchases | | | | | |
|----------------------|-----|-----|--------------------------|-----|-----|
| 1. Bank | CPJ | XXX | 2. Drawings | GJ | XXX |
| 1. Creditors control | CJ | XXX | 2. Donations | GJ | XXX |
| | | | 3. Creditors' control | CAJ | XXX |
| | | | OR Creditors' allowances | GJ | |
| | | | 4. Trading account | GJ | XXX |
| | | | | | XXX |

Purchases is adjusted to trading stock in the same way as stationery to consumable stores on hand.

Carriage on purchases and customs duties

1. Delivery of stock to the business and customs (import) duties are recorded in these accounts as **expenses** (compared to the perpetual system where carriage and customs are included in the trading stock account).
2. At the end of the year it will be closed off to the trading account, as it forms part of the Cost of Sales calculation.

| Carriage on purchases | | | | | |
|-----------------------|-----|-----|--------------------|----|-----|
| 1. Bank | CPJ | XXX | 2. Trading account | GJ | XXX |
| 1. Creditors control | CJ | XXX | | | |
| | | XXX | | | XXX |
| Customs duties | | | | | |
| 1. Bank | CPJ | XXX | 2. Trading account | GJ | XXX |
| | | XXX | | | XXX |

Creditors allowances (if business chooses to use this account instead of recording the return directly into the purchases account)

This account is used in a similar way to that in which Debtors allowances is used, i.e. to record returns separately from the original purchases account.

1. Any return of unsatisfactory stock to creditors may be recorded here (alternatively, returns may be recorded directly in the Purchases account if the business chooses not to use the Creditors Allowances account).
2. This account is closed off to Purchases at the end of the year.

| Creditors' allowances | | | | | |
|-----------------------|----|-----|-----------------------|----|-----|
| 2. Purchases | GJ | XXX | 1. Creditors' control | CJ | XXX |
| | | XXX | | | XXX |

Journals

- The cash receipts, debtors and debtors allowances journals **do not have a Cost of sales column**, as trading stock has already been recorded as an expense when it was bought.
- The cash payments and creditors journals have **Purchases** and **Carriage on Purchases** columns instead of Trading stock.
- The creditors allowances journal has a **Creditors Allowances** (or **Purchases**) column instead of Trading stock.

Internal stock control

Whichever inventory system is used (perpetual or periodic), good control must be kept over that stock. Accurate stock records should be kept, and a physical stock take should be made regularly to detect theft or damage to stock. The signature of the person responsible for the stocktaking should appear on the stock sheets to verify their accuracy. The procedure for recording stock movement (purchases and sales) should also be carefully designed to prevent fraud, and must be linked to stock records to be able to identify quantities of stock on hand. It should also be possible to identify older stock from stock records.

This is usually easier to achieve using a perpetual inventory system as the value of stock that should be on hand is known at any time, and can be compared to actual stock on hand. Since the periodic inventory system does not allow for such close control, alternative control measures such as cameras, security etc. need to be put into place.



6.3. Exercise

Show the difference between the perpetual and the periodic inventory systems by completing the table on your answer sheet.

1. The account debited when buying goods for resale.
2. The account debited when paying for delivery of goods purchased.
3. The account credited when damaged or unsatisfactory goods are returned to a creditor.
4. The account credited when goods are taken by the owner for his own use.
5. The account debited with the cost price when goods are sold.

| | Perpetual inventory system | Periodic inventory system |
|----|----------------------------|---------------------------|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |



6.4. Example

Required

Record the given transactions in the relevant journals. Totals are NOT required.

Transactions for May 20_4

1. Paid by EFT 324 to Bierman Suppliers for stock (R3 000) and stationery (R560).
2. The goods were delivered to the business by Gavin's Couriers, and the amount of R200 charged to our account. Invoice 6407 was received, renumbered 90.
3. Cash sales, R8 000.
4. Bought goods from Chido's Shop and received invoice A267 for R4 500.
5. Issued debit note 20 to Gavin's Couriers as they had forgotten to deduct our usual 10% discount as one of their regular customers.
6. Goods sold to N Funzani, R1 200. Invoice 421 issued.
7. EFT payment made to Alex Traders for R3 700 for stock bought. This included the delivery charge of R250.
8. Credit note 25 issued to N Funzani for goods returned, R100.
9. Damaged stock was returned to Chido's Shop, credit note B372 for R700 received.
10. Ivailo, the owner, took goods worth R500 for his own use.
11. Goods that had originally cost R270 were donated to the local children's home.

6. Periodic inventory system

Solution

Cash receipts journal of Ivailo Stores – May 20_4

CRJ9

| Doc | D | Details | Analysis of receipts | Bank | Sales | Sundry accounts | |
|-----|---|------------|----------------------|-------|-------|-----------------|---------|
| | | | | | | Amt | Details |
| CRR | 3 | Cash sales | 8 000 | 8 000 | 8 000 | 0 | |

Note: No cost of sales

Cash payments journal of Ivailo Stores – May 20_4

CPJ9

| Doc | D | Name of payee | Bank | Purchases | Carriage on purchases | Sundry accounts | |
|-----|---|-------------------|-------|-----------|-----------------------|-----------------|------------|
| | | | | | | Amt | Details |
| 324 | 1 | Bierman Suppliers | 3 560 | 3 000 | | 560 | Stationery |
| 325 | 7 | Alex Traders | 3 700 | 3 450 | 250 | | |

Debtor's journal of Ivailo Stores – May 20_4

DJ9

| Doc | D | Debtor | Sales |
|-----|---|-----------|-------|
| 421 | 6 | N Fonzani | 1 200 |

Note: No cost of sales

Debtors' allowances journal of Ivailo Stores – May 20_4

DAJ9

| Doc | D | Debtor | Debtors' allowances |
|-----|---|-----------|---------------------|
| 25 | 8 | N Fonzani | 100 |

Creditors' journal of Ivailo Stores – May 20_4

CJ9

| Doc | D | Creditor | Creditors control | Purchases | Carriage on purchases | Sundry accounts | |
|-----|---|------------------|-------------------|-----------|-----------------------|-----------------|---------|
| | | | | | | Amt | Details |
| 90 | 2 | Gavin's Couriers | 200 | | 200 | | |
| 91 | 4 | Chido's Shop | 4 500 | 4 500 | | | |

Creditors' allowances journal of Ivailo Stores – May 20_4

CAJ9

| Doc | D | Creditor | Creditors control | Creditors' allowances | Carriage on purchases | Sundry accounts | |
|-----|---|------------------|-------------------|-----------------------|-----------------------|-----------------|---------|
| | | | | | | Amt | Details |
| 20 | 5 | Gavin's Couriers | 20 | | 20 | | |
| 21 | 9 | Chido's Shop | 700 | 700 | | | |

General journal of Ivailo Stores – May 20_4

GJ9

| Doc | D | Details | Debit | Credit |
|-----|----|--|-------|--------|
| | 10 | Drawings Purchases Owner took goods for his own use. | 500 | 500 |
| | 11 | Donations Purchases Goods donated to local children's home. | 270 | 270 |



6.5. Exercise

Required

Record the following transactions in the journals of Samantha's Snacks for February 20_4, and total the journals. The business uses the periodic inventory system, and a mark up on cost of 100%.

Transactions for February 20_4

5. Cash sales R5 000.
7. Owner took goods for a private party. The goods were marked at R400.
8. Purchase merchandise, R2000, and stationery, R500, from Nobbs Traders on account. Received invoice 167, renumbered 72. These goods were delivered by Brian's Deliveries, received their invoice for R100.
10. Returned damaged stock to Nobbs Traders, R300, with debit note 15.
12. Purchased goods from Maponya's Munchies, R3000, and had them delivered by Brian's deliveries for R50. Paid for both by EFTs 051 and 052.
Sold goods to A. Ramsay on credit, R500. Invoice 23 issued.
15. A. Ramsay returned unsuitable goods, R100. Credit note 13 issued.
A. Ramsay settled his account by EFT. Receipt 032 issued.
16. Donated goods with a selling price of R800 to Red Cross children's hospital.
18. Settled our account with Nobbs traders by EFT for R2 200.
K. Saunders purchased goods on account, R700.
20. K. Saunders returned damaged goods, R70.
21. Received credit note 45 from Brian's Deliveries for overcharge on invoice of the 8th, R20.

Cash receipts journal of Samantha's Snacks – February 20_4 CRJ8

| Doc | D | Details | Analysis of receipts | Bank | Sales | Debtors control | Sundry accounts | |
|-----|---|---------|----------------------|------|-------|-----------------|-----------------|---------|
| | | | | | | | Amt | Details |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Cash payments journal of Samantha's Snack – February 20_4 CPJ8

| Doc | D | Name of payee | Bank | Creditors control | Purchases | Sundry accounts | |
|-----|---|---------------|------|-------------------|-----------|-----------------|---------|
| | | | | | | Amt | Details |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

6. Periodic inventory system

Creditors' journal of Samantha's Snacks – February 20_4

CJ8

| Doc | D | Creditor | Creditors control | Purchases | Stationery | Sundry accounts | |
|-----|---|----------|-------------------|-----------|------------|-----------------|---------|
| | | | | | | Amt | Details |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Creditors' allowances journal of Samantha's Snacks – February 20_4

CAJ8

| Doc | D | Creditor | Creditors control | Creditors allowances | Stationery | Sundry accounts | |
|-----|---|----------|-------------------|----------------------|------------|-----------------|---------|
| | | | | | | Amt | Details |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Debtors' journal of Samantha's Snacks – February 20_4

DJ8

| Doc | D | Debtor | Sales |
|-----|---|--------|-------|
| | | | |
| | | | |
| | | | |
| | | | |

Debtors' allowances journal of Samantha's Snacks – February 20_4

DJ8

| Doc | D | Debtor | Debtors' allowances |
|-----|---|--------|---------------------|
| | | | |
| | | | |
| | | | |
| | | | |

General journal of Samantha's Snacks - February 20_4

| Doc | D | Details | Debit | Credit |
|-----|---|---------|-------|--------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
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7. Manufacturing accounts

By the end of this chapter you should be able to
 Define manufacturing and apply costing principles and cost behaviour in a manufacturing environment (material, labour and overheads)
 Determine the cost price of a manufactured product or a service
 Determine the break even sales
 Draw up manufacturing ledger accounts

7.1. Baseline assessment



1. Briefly differentiate between financial and managerial accounting.

| | | |
|--|--|--|
| | | |
|--|--|--|

2. Why is it important to calculate the cost of a manufactured product?

| | | |
|--|--|--|
| | | |
|--|--|--|

3. Differentiate between direct and indirect material costs.

| | | |
|--|--|--|
| | | |
|--|--|--|

4. Differentiate between direct and indirect labour.

| | | |
|--|--|--|
| | | |
|--|--|--|

5. What are manufacturing overheads?

| | | |
|--|--|--|
| | | |
|--|--|--|

6. Differentiate between fixed and variable costs.

| | | |
|--|--|--|
| | | |
|--|--|--|



Manufacturing activities

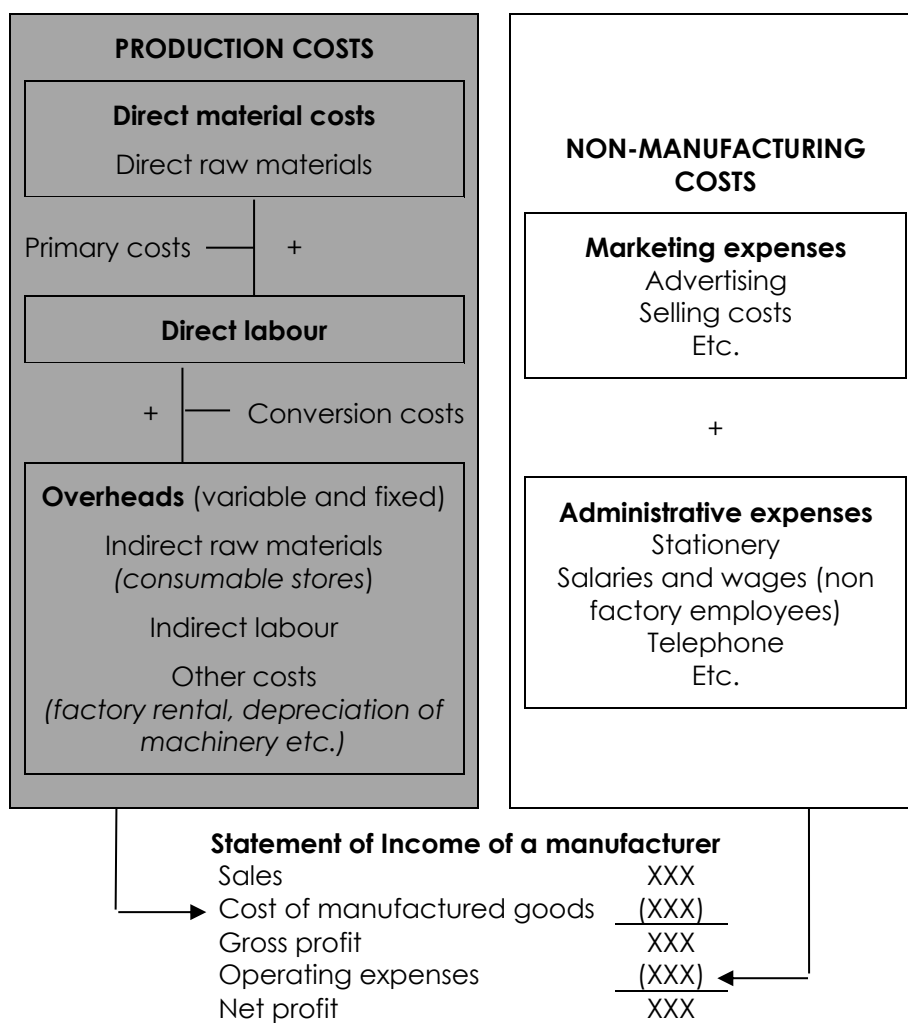
Trading businesses

Up until now you have only recorded transactions for business offering a simple service or buying and selling products (wholesalers and retailers). Stock kept by these businesses is valued at the total price paid for the product and to get it to the business i.e. delivery costs to the business are included.

Manufacturers

Other businesses choose to make their products and then sell them. In this case the calculation of the cost of those goods is much more complicated, as a number of factors need to be taken into account. Costs such as raw materials, labour and other additional costs such as factory rental need to be very carefully tracked in order to work out the actual cost of producing one product.

Total expenses of a manufacturer





7.2. Group activity

The **aim** of this activity is to demonstrate how

- costs are tracked and recorded while products are manufactured
- cost accounting provides information for both financial reporting and management decision making

You will need: 3 x construction kit provided by your educator, pencil and a calculator.

You are a business making the product given to your group. You will need to track and record all the costs involved in order to provide the necessary cost accounting information to satisfy the needs of both the financial and management accountants.

Lesson 1

Form a group of 4 or 5 learners.

You will use this lesson to make the products. You should each perform a different function i.e. division of labour should take place to allow for specialisation in order to improve efficiency. Be sure to complete one entire product together before moving on to making the next one.

At the same time, you need to track and calculate the costs of production to provide the information needed by the

- management accountant to be able to make management decisions
- financial accountant to report on business performance.

You will do this by using the following page to record and move costs to the relevant cost centres.

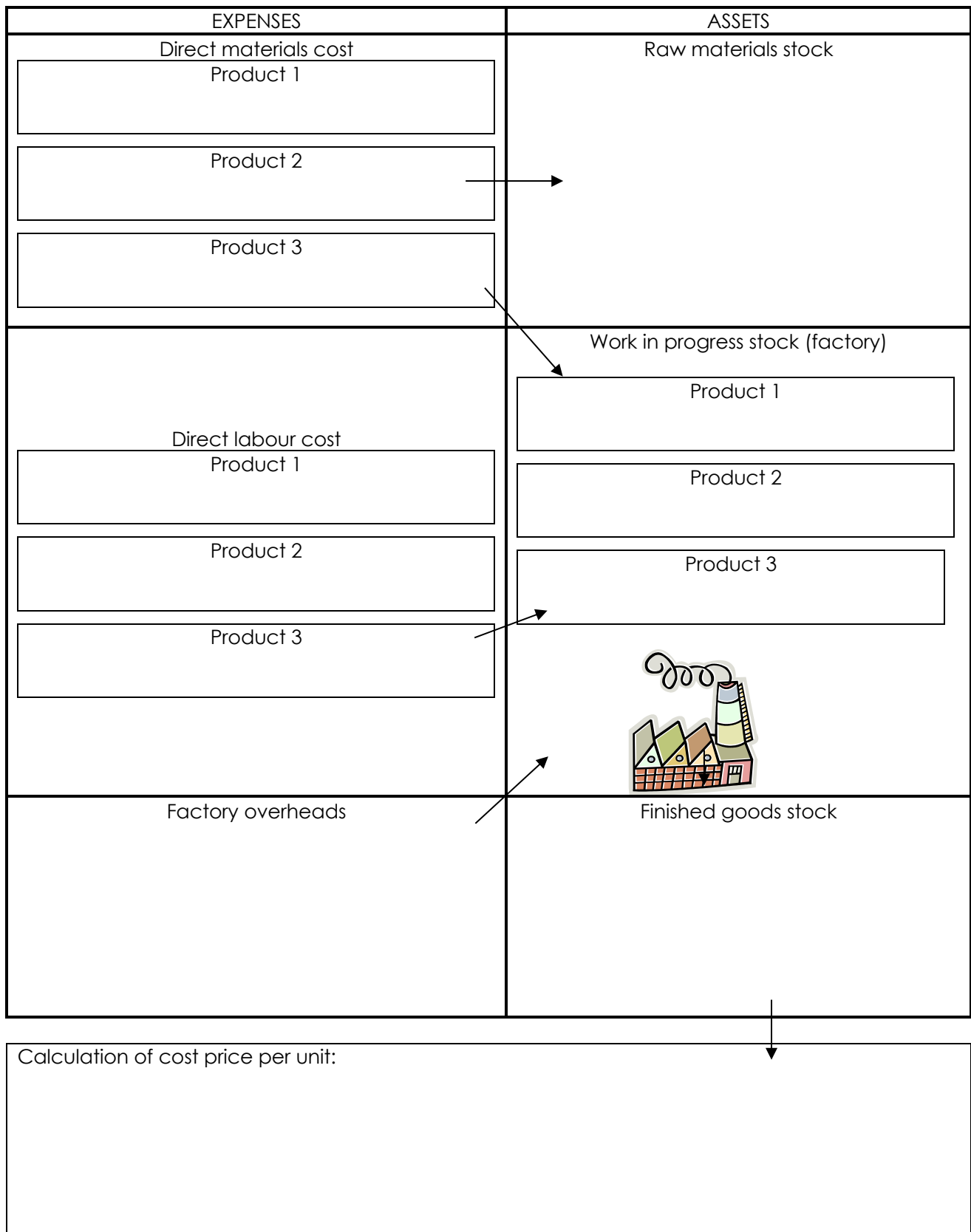
Costs

| | |
|--|--|
| Raw materials | (your teacher will tell you this amount) |
| Wages | R10 per part produced |
| Equipment rental (screwdrivers, scissors etc.) | R10 per hour |
| Factory rental (desk and chair space to work) | R10 per hour |
| Accountant's salary | R12 000 per month |
| Administration expenses | R2 000 per month |
| Marketing expenses | R3 000 per month |

Note: all hourly costs can be allocated pro rata for part thereof. Keep track of the times taken to produce your products in order to accurately allocate overheads to work-in-progress.

You may assume that there are 8 working hours in a day, 5 working days per week, and 4 weeks per month.





Lesson 2

Use the costing information you provided last lesson to take on the roles of the

3. **Management accountant:**

3.1. Suggest a suitable selling price for this product.

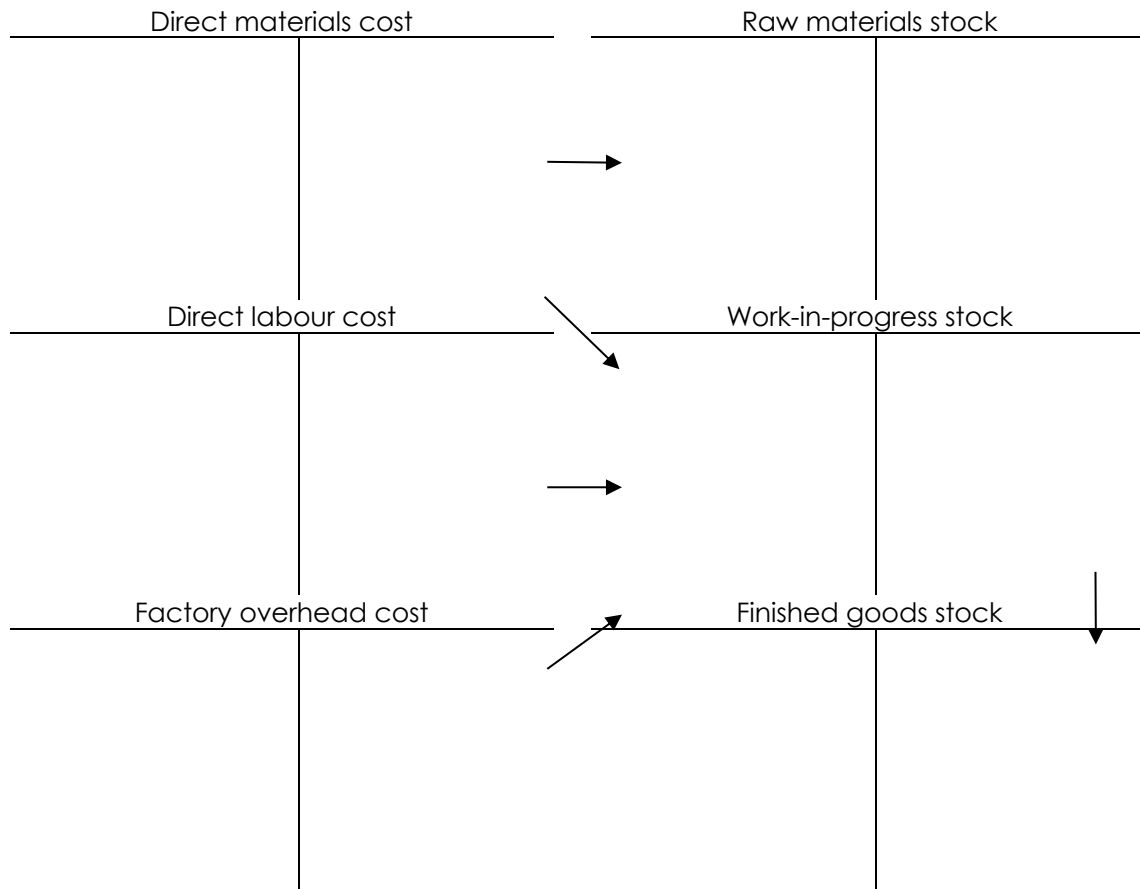
3.2. Determine the break-even point of production per month at this price i.e. the number of units you need to produce so as not to make a loss.

3.3. Suggest how costs could be cut to improve profitability.

3.4. Suggest how production could be adapted to improve efficiency and productivity.

4. **Financial accountant:**

- 4.1. Record the transactions shown on the previous page in the following T-accounts. Keep in mind that the expense accounts are used to record the payments for transactions during the period. These are closed off to the asset accounts to show what is on hand at the end of the period.



- 4.2. Assume you made and sold 1 000 units last month. Draw up the Statement of Income for the month. To calculate cost of sales, refer to your cost per unit calculation in lesson 1.

Crazy Construction

Statement of Income for the month ended:

| | |
|--------------------|--|
| Sales | |
| Cost of sales | |
| Gross profit | |
| Operating expenses | |
| | |
| | |
| | |
| Net profit | |

General ledger accounts for production costs

A manufacturer keeps stock of raw materials, work-in-progress (semi-finished goods) and finished goods. These assets may be controlled using either the perpetual or periodic inventory system, depending on the characteristics and requirements of the business. A separate **Cost Accounts Section** may be used to classify the different types of costs, to which the expenses are all closed off. Alternatively, costs may simply be recorded in the Statement of Income section.

Perpetual vs. periodic inventory systems

For example, an expensive car manufacturer that takes a long time to produce a few units may choose to use the perpetual system i.e. stock will be tracked and recorded as it is bought, transferred from the store room (raw materials stock) to the factory (work-in-progress) and then from the factory to the warehouse ready for sale (finished goods). However, most manufacturers deal with a large number of cheaper units, in which case the periodic inventory system is more practical. The examples and exercises for manufacturers in this book are based on the periodic system, unless otherwise stated.

Recording manufacturing transactions (periodic)

| EXPENSES | | | | ASSETS (Inventory) | | | |
|------------------------|----|-----------------|----|---------------------------|----|---------------|----|
| Direct materials cost | | | | Raw materials stock | | | |
| Bank | XX | RM stock | XX | D M cost | XX | | |
| | | WIP stock | XX | | | | |
| | XX | | XX | | | | |
| Direct labour cost | | | | Work-in-progress stock | | | |
| Bank | XX | WIP stock | XX | D M cost | XX | Fin goods | XX |
| | XX | | XX | D L cost | XX | Bal c/d | XX |
| | | | | Fact overh | XX | | |
| | | | | | XX | | |
| | | | | Bal b/d | XX | | XX |
| Factory overheads cost | | | | Finished goods stock | | | |
| Rent expense | XX | WIP stock | XX | WIP stock | XX | Cost of sales | XX |
| Cons stores | XX | | | | | Bal c/d | XX |
| Insurance | XX | | | | XX | | XX |
| Depreciation | XX | | | Bal b/d | XX | | |
| | XX | | | | | | |
| | | | | | | | |
| Cons stores | | | | Consumable stores on hand | | | |
| Rent expense | | Bank | X | Cons stores | XX | | |
| Bank | X | F Ov | X | | | | |
| | X | | X | | | | |
| | | | | | | | |
| Insurance | | | | | | | |
| Bank | X | F Ov | X | | | | |
| | X | | X | | | | |
| | | | | | | | |
| Depreciation | | | | | | | |
| | | Acc dep | X | | | | |
| | | | X | | | | |
| | | | | | | | |
| Cost of sales | | | | | | | |
| Fin goods | XX | Trading account | XX | | | | |
| | XX | | XX | | | | |



NOTE: If the perpetual system is in use, stock will be recorded as an asset and then moved to the cost account as it is used.



7.3. Example

Required:

Complete the given general ledger accounts for the year ended 28 February 20_4.

Information

1. The following payments were made during the year:
 - Purchase of raw materials, R50 000 (R45 000 direct material cost, R5 000 indirect material cost)
 - Wages, R80 000
 - Factory rental, R20 000
2. The following adjustments must be made at the end of the year:
 - 2.1. Depreciation on machinery of R10 000 must be taken into account.
 - 2.2. A physical stock take revealed the following on hand:
 - Stock of direct raw materials R3 000
 - Work-in-progress R12 000
 - Finished goods R20 000
 - Indirect raw materials R1 000
3. Transfers of stock during the year:
 - 3.1. Raw materials costing R42 000 were transferred to the factory for production.
 - 3.2. R144 000 finished goods were transferred from the factory to the warehouse ready for sale.
 - 3.3. Goods costing R124 000 were sold.
4. All expenses are closed off at the end of the year.

Solution

Statement of financial position section

Raw materials stock A1

| | | | | | | | | | |
|-------------|----|-----------------------------|----|-------|--|--|--|--|--|
| 20_4 Feb | 28 | Raw materials issued (2.2.) | GJ | 3 000 | | | | | |
|-------------|----|-----------------------------|----|-------|--|--|--|--|--|

Work-in-progress stock A2

| | | | | | | | | | |
|-------------|----|----------------------------|-----|---------|-------------|----|-----------------------------|-----|---------|
| 20_4 Feb | 28 | Direct material cost (4) | GJ | 42 000 | 20_4 Feb | 28 | Finished goods stock (3.2.) | GJ | 144 000 |
| | | Direct labour cost (4) | GJ | 80 000 | | | Balance | c/d | 12 000 |
| | | Factory overheads cost (4) | GJ | 34 000 | | | | | |
| | | | | 156 000 | | | | | 156 000 |
| Mar | 1 | Balance (2.2.) | b/d | 12 000 | | | | | |

Finished goods stock A3

| | | | | | | | | | |
|-------------|----|-------------------------------|-----|---------|-------------|----|----------------------|-----|---------|
| 20_4 Feb | 28 | Work-in-progress stock (3.2.) | GJ | 144 000 | 20_4 Feb | 28 | Cost of sales (3.3.) | GJ | 124 000 |
| | | | | 144 000 | | | Balance | c/d | 20 000 |
| Mar | 1 | Balance (2.2.) | b/d | 20 000 | | | | | 144 000 |

Consumable stores on hand A4

| | | | | | | | | | |
|-------------|----|--------------------------|----|-------|--|--|--|--|--|
| 20_4 Feb | 28 | Consumable stores (2.2.) | GJ | 1 000 | | | | | |
|-------------|----|--------------------------|----|-------|--|--|--|--|--|

7. Manufacturing accounts

Statement of income section

Cost of sales E1

| | | | | | | | | | |
|-------------|----|--------------------------------|----|---------|-------------|----|---------------------|----|---------|
| 20_4 Feb | 28 | Finished goods Stock (3.3.) | GJ | 124 000 | 20_4 Feb | 28 | Trading account (4) | GJ | 124 000 |
| | | | | 124 000 | | | | | 124 000 |

Raw materials issued E2

| | | | | | | | | | |
|-------------|----|-------------|-----|--------|-------------|----|---------------------------------|----|--------|
| 20_4 Feb | 28 | Balance (1) | CPJ | 45 000 | 20_4 Feb | 28 | Raw materials stock (3.2.) | GJ | 3 000 |
| | | | | | | | Direct materials cost (1.1.) | GJ | 42 000 |
| | | | | 45 000 | | | | | 45 000 |

Factory wages E3

| | | | | | | | | | |
|-------------|----|-------------|-----|--------|-------------|----|------------------------|----|--------|
| 20_4 Feb | 28 | Balance (1) | b/d | 80 000 | 20_4 Feb | 28 | Direct labour cost (4) | GJ | 80 000 |
| | | | | 80 000 | | | | | 80 000 |

Consumable stores E4

| | | | | | | | | | |
|-------------|----|-------------|-----|-------|-------------|----|-------------------------------------|----|-------|
| 20_4 Feb | 28 | Balance (1) | b/d | 5 000 | 20_4 Feb | 28 | Consumable stores on hand (2.2.) | GJ | 1 000 |
| | | | | | | | Factory overheads cost (4) | GJ | 4 000 |
| | | | | 5 000 | | | | | 5 000 |

Rent expense E5

| | | | | | | | | | |
|-------------|----|-------------|-----|--------|-------------|----|-------------------------------|----|--------|
| 20_4 Feb | 28 | Balance (1) | b/d | 20 000 | 20_4 Feb | 28 | Factory overheads cost (4) | GJ | 20 000 |
| | | | | 20 000 | | | | | 20 000 |

Depreciation E6

| | | | | | | | | | |
|-------------|----|---|----|--------|-------------|----|-------------------------------|----|--------|
| 20_4 Feb | 28 | Accumulated depreciation on equipment (2.1.) | GJ | 10 000 | 20_4 Feb | 28 | Factory overheads cost (4) | GJ | 10 000 |
| | | | | 10 000 | | | | | 10 000 |

Cost accounts section

Direct material cost C1

| | | | | | | | | | |
|-------------|----|--------------------------------|----|--------|-------------|----|-------------------------------|----|--------|
| 20_4 Feb | 28 | Raw materials issued (3.1.) | GJ | 42 000 | 20_4 Feb | 28 | Work-in-progress stock (4) | GJ | 42 000 |
| | | | | 42 000 | | | | | 42 000 |

Direct labour cost C2

| | | | | | | | | | |
|-------------|----|-------------------|----|--------|-------------|----|----------------------|----|--------|
| 20_4 Feb | 28 | Factory wages (4) | GJ | 80 000 | 20_4 Feb | 28 | Work-in-progress (4) | GJ | 80 000 |
| | | | | 80 000 | | | | | 80 000 |

Factory overheads cost C6

| | | | | | | | | | |
|-------------|----|-----------------------|----|--------|-------------|----|-------------------------------|----|--------|
| 20_4 Feb | 28 | Consumable stores (4) | GJ | 4 000 | 20_4 Feb | 28 | Work-in-progress stock (4) | GJ | 34 000 |
| | | Rent expense (4) | GJ | 20 000 | | | | | |
| | | Depreciation (4) | GJ | 10 000 | | | | | |
| | | | | 34 000 | | | | | 34 000 |



7.4. Exercise

Required

Complete the given general ledger accounts for the year ended 30 June 20_4. Remember to balance or close off the accounts.

Information

- General ledger balances on 30 June 20_4: Direct raw material issued R65 000, Consumable stores R15 000, Factory wages R120 000, Factory rent expense R45 000
- Depreciation on computerised equipment of R70 000 must be taken into account.
- Raw materials moved from the store room to the factory: direct materials R53 000, indirect materials R12 000.
- Finished goods transferred from the factory to the warehouse, R292 000.
- A physical stock take on 30 June 20_4 revealed the following on hand: stock of direct raw materials R12 000, work-in-progress R8 000, finished goods R40 000, indirect raw materials R3 000.

Statement of financial position section

Raw materials stock A1

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Work-in-progress stock A2

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Finished goods stock A3

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Consumable stores on hand A4

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Statement of income section

Cost of sales E1

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Direct raw materials issued E2

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7. Manufacturing accounts

Factory wages E3

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Consumable stores E4

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Factory rent expense E5

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Depreciation E6

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Cost accounts section

Direct raw material cost C1

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Direct labour cost C2

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Factory overheads cost C3

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Calculating the costs of production

The following table shows how different cost components are added to determine the total cost of production.

| | | | |
|--------------------------|------------------------------|--------------------------------|----------------------|
| TOTAL COST OF PRODUCTION | Primary cost (Prime cost) | Direct material cost | Direct labour cost |
| | | Indirect material cost | Indirect labour cost |
| | Manufacturing overheads | Water and electricity | |
| | | Factory rental | |
| | | Depreciation of machinery etc. | |
| | | | |

$$\text{Cost per unit} = \frac{\text{Total cost of production}}{\text{Number of units produced}}$$

Relationship to general ledger accounts

 All indirect costs i.e. manufacturing overheads, shown in **factory overheads** account.

 Total cost of stock produced, calculated in **work-in-progress** stock account and transferred to **finished goods** stock account.

7.5. Example *(Continuation of example 7.3.)*



Required:

Calculate the following:

- Total direct costs of production for the year
- Total manufacturing overheads for the year
- Total cost of production for the year
- Cost per unit if there were 72 000 units completed during the year. (Note: take into account unfinished goods stock at year end – this will form part of the total production costs, but cannot be allocated to finished units).

Information

- The following payments were made during the year:
 - Purchase of raw materials, R50 000 (R45 000 direct material cost, R5 000 indirect material cost)
 - Wages, R80 000
 - Factory rental, R20 000
- Transfers of stock during the year:
 - Raw materials costing R42 000 were transferred to the factory for production.
 - R144 000 finished goods were transferred from the factory to the warehouse ready for sale.
 - Goods costing R124 000 were sold.

7. Manufacturing accounts

3. The following adjustments must be made at the end of the year:
- 3.1. Depreciation on machinery of R10 000 must be taken into account.
- 3.2. A physical stock take revealed the following on hand:
 Stock of direct raw materials R3 000
 Work-in-progress R12 000
 Finished goods R20 000
 Indirect raw materials R1 000
4. All expenses are closed off at the end of the year.

Work-in-progress stock A2

| | | | | | | | | | |
|-------------|----|--|-----|---------|-------------|----|-------------------------|-----|---------|
| 20_4 Feb | 28 | Direct material cost (45 000 – 3 000) | GJ | 42 000 | 20_4 Feb | 28 | Finished goods stock | GJ | 144 000 |
| | | Direct labour cost | GJ | 80 000 | | | Balance | c/d | 12 000 |
| | | Factory overheads costs | GJ | 34 000 | | | | | |
| | | | | 156 000 | | | | | 156 000 |
| Mar | 1 | Balance | b/d | 12 000 | | | | | |

Solution

| | | From given information | From ledger accounts |
|----|----------------------------|---|--|
| 1. | Direct costs | Raw materials (45 000(1) – 3 000(3.2.) = R42 000(2.1.)) + Wages R80 000 (1) = R122 000 | Direct material cost R42 000 + Direct labour cost R80 000 = R122 000 |
| 2. | Manufacturing overheads | Indirect raw materials (R5 000 (1) – R1 000 (3.2.)) + Factory rental R20 000(1) + Depreciation R10 000 (3.1) = R34 000 | Factory overheads cost R34 000 |
| 3. | Total production cost | Direct R122 000 + overheads R34 000 = R156 000 | Direct material cost R42 000 + direct labour cost R80 000 + factory overheads R34 000 = R156 000 |
| 4. | Cost per unit | Total cost R156 000 – closing stock R12 000 = goods transferred to warehouse R144 000 / 72 000 = R2 per unit | Finished goods R144 000 / 72 000 = R2 per unit |



7.6. Exercise

(Continuation of Exercise 7.4.)

Required

Calculate the following:

1. Total direct costs of production for the year
2. Total manufacturing overheads for the year
3. Total cost of production for the year
4. Cost per unit if there were 58 400 units completed during the year. (Note: take into account unfinished goods stock at year end – this will form part of the total production costs, but cannot be allocated to finished units).

Information

1. General ledger balances on 30 June 20_4: Direct material cost R65 000, Consumable stores R15 000, Direct labour cost R120 000, Factory rent expense R45 000
2. Depreciation on computerised equipment of R70 000 must be taken into account.
3. Raw materials moved from the store room to the factory: direct materials R53 000, indirect materials R12 000.
4. Finished goods transferred from the factory to the warehouse, R292 000.
5. A physical stock take on 30 June 20_4 revealed the following on hand: stock of direct raw materials R12 000, work-in-progress R8 000, finished goods R40 000, indirect raw materials R3 000.

Work-in-progress stock A2

| | | | | | | | | | |
|--------------|----|-------------------------|-----|---------|--------------|----|----------------------|-----|---------|
| 20_4 June | 30 | Direct material cost | GJ | 53 000 | 20_4 June | 30 | Finished goods stock | GJ | 292 000 |
| | | Direct labour cost | GJ | 120 000 | | | Balance | c/d | 8 000 |
| | | Factory overheads costs | GJ | 127 000 | | | | | |
| | | | | 300 000 | | | | | 300 000 |
| Mar | 1 | Balance | b/d | 8 000 | | | | | |

7. Manufacturing accounts

| | From given information | From ledger accounts |
|-------------------------|------------------------|----------------------|
| Direct costs | | |
| Manufacturing overheads | | |
| Total production cost | | |
| Cost per unit | | |

7.7. Formative assessment

(50 marks, 30 minutes)

**Information**

- The business records direct materials bought directly into the direct material cost account.
- General ledger balances on 31 December 20_4: Direct material cost R82 000, Consumable stores R10 000, Direct labour cost R230 000, Factory rent expense R380 000
- Depreciation on machinery of R56 000 must be taken into account.
- A physical stock take on 31 December 20_4 revealed the following on hand: stock of direct raw materials R18 000, work-in-progress R15 000, finished goods R75 000, Consumable stores R2 000.

Required

- Complete the given general ledger accounts for the year ended 31 December 20_4.

1.1. Work-in-progress stock A2 (9)

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1.2. Finished goods stock A3 (5)

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1.3. Direct raw materials cost E1 (5)

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1.4. Consumable stores E3 (5)

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7. Manufacturing accounts

1.5. Factory overhead costs E6 (8)

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1.6. Cost of sales E7 (4)

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2. Answer the following questions.

2.1. What are the total direct costs? (3)

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2.2. What are the total indirect costs? (1)

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| |
|--|

2.3. What is the total cost of production? (1)

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|--|
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|--|

2.4. What is the cost per unit if 12 050 units were produced during the year? (3)

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|--|
| |
|--|

2.5. What was the cost of sales for the year? (2)

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|--|

2.6. What would the sales be if a constant mark-up of 150% is used? (4)

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