

Calculation and understanding of accounting ratios

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Last checked 1 October 2026

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What you need to know

By the end of this topic you should be able to understand, calculate and explain why each of these eight ratios matters:

1. **Gross margin:** gross profit as a percentage of revenue (and its partner, the **mark-up:** gross profit as a percentage of cost of sales).
2. **Profit margin:** profit for the year as a percentage of revenue.
3. **Return on capital employed (ROCE):** profit before interest as a percentage of the long-term money used in the business.
4. **Current ratio:** current assets compared with current liabilities.
5. **Liquid (acid test) ratio:** current assets without inventory, compared with current liabilities.
6. **Rate of inventory turnover:** how many times a year the average inventory is sold.
7. **Trade receivables turnover:** how many days credit customers take, on average, to pay.
8. **Trade payables turnover:** how many days the business takes, on average, to pay its credit suppliers.

Comparing ratios over years, comparing two businesses, and the uses of accounts by different groups have their own topics (interpretation of ratios, inter-firm comparison and interested parties). Here you need what each ratio measures and simple ways it can be improved.

Understand it

Why ratios?

A profit of \$20 000 sounds good, but is it? For a market stall with \$50 000 of sales it is excellent; for a supermarket with \$5 million of sales it is poor. A ratio compares one figure with another, so businesses of different sizes, or the same business in different years, can be compared fairly.

The eight ratios fall into two groups:

- **Profitability:** how well the business turns sales and capital into profit (gross margin, profit margin, ROCE).
- **Liquidity and working capital:** whether the business can pay its debts as they fall due, and how quickly inventory, customers and suppliers turn into cash (current ratio, liquid ratio, the three turnover ratios).

Every ratio uses figures from the **income statement** (revenue, cost of sales, profit, credit sales and purchases) and/or the **statement of financial position** (assets, liabilities, capital). Much of the work is picking out the right figures.

Gross margin, mark-up and profit margin

Take a trader with revenue \$80 000, cost of sales \$50 000 and expenses \$18 000. Gross profit is $80\,000 - 50\,000 = 30\,000$ and profit for the year is $30\,000 - 18\,000 = 12\,000$.

Revenue \$80 000		
Cost of sales \$50 000	Gross profit \$30 000	
gross profit is split into		
	Expenses \$18 000	Profit \$12 000

$$\text{Gross margin} = 30\,000 \div 80\,000 \times 100 = 37.50\%$$

$$\text{Profit margin} = 12\,000 \div 80\,000 \times 100 = 15.00\%$$

$$\text{Mark-up} = 30\,000 \div 50\,000 \times 100 = 60.00\%$$

$$\text{gross margin} = \frac{30\,000}{80\,000} \times 100 = 37.50\%, \quad \text{profit margin} = \frac{12\,000}{80\,000} \times 100 = 15.00\%.$$

- **Gross margin** shows how much of each \$1 of sales is left after paying for the goods sold: here 37.5 cents. It depends on the **selling price** and the **cost of buying** the goods. It rises if the trader raises prices, finds cheaper suppliers or gets trade discount, or sells more of the goods that earn more.
- **Profit margin** shows how much of each \$1 of sales is left after **all** expenses: here 15 cents. It rises if gross profit rises or expenses fall. Other income (rent received, discount received) is part of profit for the year, so it counts too.
- The **gap** between the two margins (here 22.5 percentage points) is the share of sales eaten by expenses. A gross margin that holds steady while the profit margin falls means expenses are growing faster than sales.

Mark-up uses the same gross profit but divides by **cost of sales**: $\frac{30\,000}{50\,000} \times 100 = 60\%$. The mark-up is always bigger than the margin, because cost of sales is smaller than revenue. Read the question carefully to see which one it wants.

Return on capital employed (ROCE)

ROCE answers the owner's key question: "For every \$100 of long-term money in this business, how much profit does it make?" That can be set against what the money would earn elsewhere (a bank deposit, say).

$$\text{ROCE} = \frac{\text{profit before interest}}{\text{capital employed}} \times 100$$

- **Capital employed** is all the long-term finance: the owner's capital (or, for a company, share capital plus reserves) **plus non-current liabilities** such as loans and debentures. Working it out from the other side gives the same figure: non-current assets + current assets – current liabilities.
- **Profit before interest**: the lenders' money is in capital employed, so the reward paid to them must be in the profit too. Take profit for the year and **add back** loan or debenture interest.
- For a sole trader, use the capital at the **end** of the year (after profit has been added and drawings taken off) unless the question says otherwise. With no loan, ROCE is simply profit $\div$ capital $\times 100$.

For example, a trader's profit for the year is \$19 400 after loan interest of \$600. Her closing capital is \$95 000 and her bank loan (repayable in 2029) is \$10 000. $\text{ROCE} = \frac{19\,400+600}{95\,000+10\,000} \times 100 = \frac{20\,000}{105\,000} \times 100 = 19.05\%$.

ROCE rises if profit rises (higher margins, more sales, lower expenses) or if capital employed falls (paying off a loan, the owner drawing out capital that isn't being used).

Current ratio and liquid (acid test) ratio

Can the business pay the debts due in the next year out of the assets that will turn into cash in the next year?

Current assets \$18 000

Inventory \$9 000	Trade receivables \$6 000	Cash \$3 000
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liquid assets \$9 000

Current liabilities \$7 500

Trade payables \$6 000	Bank overdraft \$1 500
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Current ratio = 18 000 : 7 500 = 2.40 : 1

Liquid ratio = (18 000 – 9 000) : 7 500 = 1.20 : 1

$$\text{current ratio} = \frac{\text{current assets}}{\text{current liabilities}} = \frac{18\,000}{7\,500} = 2.40 : 1$$

$$\text{liquid (acid test) ratio} = \frac{\text{current assets} - \text{inventory}}{\text{current liabilities}} = \frac{9\,000}{7\,500} = 1.20 : 1$$

- **Current assets:** inventory, trade receivables (after any provision for doubtful debts), other receivables (prepaid expenses, income owing), cash at bank and cash in hand.
- **Current liabilities:** trade payables, other payables (expenses owing), a **bank overdraft**, and any loan repayable **within 12 months**. A loan repayable later is a non-current liability and is left out.
- **Why leave out inventory?** It is the slowest current asset to become cash: it must be sold first, and then the customer may take weeks to pay. So the liquid ratio is the **stricter test**, and the better guide to whether debts can be paid **now**.

A current ratio of around 1.5 : 1 to 2 : 1 and a liquid ratio of about 1 : 1 are often thought comfortable, but it depends on the business. **Too low** (a liquid ratio well below 1 : 1) means the business may struggle to pay suppliers and may lose cash discounts or have to borrow. **Too high** means money is sitting idle in inventory, customers' debts or the bank, where it earns nothing.

Rate of inventory turnover

$$\text{rate of inventory turnover} = \frac{\text{cost of sales}}{\text{average inventory}}, \quad \text{average inventory} = \frac{\text{opening inventory} + \text{closing inventory}}{2}$$

Cost of sales is used, not revenue, because inventory is valued at cost. With cost of sales \$96 000 and inventory of \$7 000 at the start and \$9 000 at the end, average inventory is \$8 000 and the rate is $96\,000 \div 8\,000 = 12$ times a year: on average the shelves are emptied and refilled 12 times, or once a month.

A **higher** rate is usually better: goods sell quickly, so less cash is tied up in them, storage costs are lower and there is less risk of goods going out of date, being damaged or going out of fashion. The rate depends on the goods: a bakery turns inventory over far more often than a furniture shop. A service business (an accountant, a hairdresser) has little or no inventory, so the ratio means nothing for it.

Trade receivables and trade payables turnover

$$\text{trade receivables turnover} = \frac{\text{trade receivables}}{\text{credit sales}} \times 365 \text{ days}, \quad \text{trade payables turnover} = \frac{\text{trade payables}}{\text{credit purchases}} \times 365 \text{ days}$$

- **Receivables days:** the average time credit customers take to pay. Compare it with the credit terms the business allows (for example 30 days). A **shorter** period is better: cash comes in sooner and there is less risk of irrecoverable debts.
- **Payables days:** the average time the business takes to pay its suppliers. A longer period keeps cash in the business for longer, but paying late can lose cash discounts, damage the relationship with suppliers and lead them to refuse credit.

- Use **credit** sales and **credit** purchases only. Cash sales never create a trade receivable, so including them makes the period look shorter than it really is. Use **trade** receivables and payables only, not other receivables or other payables.
- Answers are in **days**, and the question usually asks you to **round up to the next whole day**: 36.2 days becomes 37, and even 40.02 becomes 41.

If receivables take longer to pay than the business takes to pay its suppliers, it has to fund the gap itself, often with a bank overdraft.

Key facts and formulas

There is no formula list in the IGCSE Accounting exam: the syllabus says candidates should know these ratios, so every one must be learnt.

Formula	Status
Gross margin = $\frac{\text{gross profit}}{\text{revenue}} \times 100 (\%)$	Learn it
Mark-up = $\frac{\text{gross profit}}{\text{cost of sales}} \times 100 (\%)$	Learn it
Profit margin = $\frac{\text{profit for the year}}{\text{revenue}} \times 100 (\%)$	Learn it
ROCE = $\frac{\text{profit before interest}}{\text{capital employed}} \times 100 (\%)$	Learn it
Capital employed = owner's capital (or share capital + reserves) + non-current liabilities = non-current assets + current assets – current liabilities	Learn it
Current ratio = $\frac{\text{current assets}}{\text{current liabilities}}$ (answer $x : 1$)	Learn it
Liquid (acid test) ratio = $\frac{\text{current assets} - \text{inventory}}{\text{current liabilities}}$ (answer $x : 1$)	Learn it
Rate of inventory turnover = $\frac{\text{cost of sales}}{\text{average inventory}}$ (times)	Learn it
Average inventory = $\frac{\text{opening} + \text{closing inventory}}{2}$	Learn it
Trade receivables turnover = $\frac{\text{trade receivables}}{\text{credit sales}} \times 365 (\text{days})$	Learn it
Trade payables turnover = $\frac{\text{trade payables}}{\text{credit purchases}} \times 365 (\text{days})$	Learn it
Cost of sales = opening inventory + purchases – closing inventory	Learn it

Useful rearrangements: profit = margin $\times$ revenue; cost of sales = rate of inventory turnover $\times$ average inventory; trade receivables = days $\times$ credit sales $\div 365$; current liabilities = current assets $\div$ current ratio.

How to do it

We have 69 tagged questions for this topic from 2021 to 2025 (46 different, as many appear on two or three paper variants): 1-mark multiple-choice questions from Paper 1 and 20-mark Paper 2 questions. 14 of them mix more than one type (a Paper 2 question usually asks for several ratios at once), so the counts add up to 107. The comments and advice parts of those Paper 2 questions are taught in the interpretation of ratios topic.

Question type	Questions
Calculate gross margin, profit margin (or mark-up)	19
Calculate return on capital employed (ROCE)	16
Calculate rate of inventory turnover (times)	16
Identify what a ratio means, measures or needs (theory)	15
Calculate current ratio and liquid (acid test) ratio	12
Explain a ratio's change or suggest ways to improve it	11
Calculate trade receivables or trade payables turnover (days)	10
Work backwards from a given ratio to a missing figure	8

1. Calculate gross margin, profit margin (or mark-up) (19 questions)

1. **Cost of sales** = opening inventory + purchases – closing inventory (unless it is given).
2. **Gross profit** = revenue – cost of sales. Revenue is cash sales **plus** credit sales.
3. **Profit for the year** = gross profit + other income – expenses.
4. **Divide by revenue** and multiply by 100. Give the answer **to two decimal places with %**: 18.46%, not 18.5 or 0.1846.

For example, revenue \$64 000, opening inventory \$4 000, purchases \$41 000, closing inventory \$5 000, expenses \$14 400: cost of sales = 40 000, gross profit = 24 000, gross margin = 37.50%; profit = 9 600, profit margin = 15.00%.

Variations you will meet:

- **Revenue not given** (multiple choice): build it back up. Revenue = cost of sales + gross profit, and gross profit = expenses + profit. For cost of sales \$63 000, expenses \$9 800 and profit \$17 200, gross profit is \$27 000, revenue is \$90 000 and the profit margin 19.11%. Dividing by cost of sales instead is the trap.
- **Mark-up** asked instead of margin: divide gross profit by **cost of sales**. Revenue \$75 000 and gross profit \$25 000 give cost of sales \$50 000 and a mark-up of 50.00% (the margin is 33.33%).
- **Gross profit given**: don't recompute it; go straight to the division.
- **Other income** (rent received, commission, discount received) is added before the profit margin. Forgetting it is a common error.
- **A company**: profit for the year is after debenture interest. Use it as it is for the profit margin.

2. Calculate return on capital employed (ROCE) (16 questions)

1. **Profit before interest** = profit for the year + loan or debenture interest. For "6% debentures \$40 000", interest is $6\% \times 40\,000 = 2\,400$.
2. **Capital employed**:
 - sole trader: closing capital (opening capital + profit – drawings) + non-current liabilities;
 - company: share capital + reserves (general reserve, retained earnings) + debentures and other non-current loans. If the question has just had you prepare the statement of financial position or statement of changes in equity, take the **equity total** from there and add the debentures;

- or: non-current assets + current assets – current liabilities (both ways are accepted and give the same answer).

3. **Divide** and multiply by 100; two decimal places, %.

Variations you will meet:

- **No loan:** $\text{ROCE} = \text{profit} \div \text{capital} \times 100$.
- **A loan but no interest figure given:** still add the loan to capital. Profit \$18 900, capital \$126 000 and a loan of \$14 000 give $18\,900 \div 140\,000 \times 100 = 13.50\%$; using capital alone (15.00%) is the trap.
- **"Net profit before interest" given:** use it directly with equity + debentures.
- **Working capital given** (multiple choice): it is not capital employed. Capital employed = non-current assets + working capital, or capital + non-current liabilities.
- **Theory:** capital employed adds **non-current liabilities** to owner's capital; ROCE needs **profit before interest**, non-current liabilities and owner's capital.

3. Calculate rate of inventory turnover (times) (16 questions)

1. **Cost of sales** = opening inventory + purchases – closing inventory (1).
2. **Average inventory** = (opening + closing) $\div$ 2 (1).
3. **Rate** = cost of sales $\div$ average inventory, to two decimal places, followed by **"times"** (1).

Variations you will meet:

- **Two years of figures** (multiple choice): use the cost of sales for the year asked and the inventory at the start and end of **that** year. Don't use purchases.
- **Closing inventory corrected:** redo cost of sales with the correct figure. If closing inventory goes **up**, cost of sales goes **down**, and the average goes up. For opening \$600, purchases \$15 800 and closing corrected from \$1 400 to \$1 800: cost of sales = 14 600, average = 1 200, rate = 12.17 times.
- **Opening inventory described, not given** ("closing inventory was double the opening"): work it out first.
- **What it tells a salesperson:** a sales manager paid on the number of items sold cares about how fast inventory sells, the rate of inventory turnover.

4. Identify what a ratio means, measures or needs (theory) (15 questions)

Paper 1, 1 mark. Learn what each ratio is **for**:

Question asks	Answer
Best test of whether debts can be paid now (best indicator of liquidity)	Liquid (acid test) ratio
What liquid assets are compared with	Current liabilities
What is added to owner's capital to give capital employed	Non-current liabilities
Figures needed for a sole trader's ROCE	Profit before interest, non-current liabilities, owner's capital
What trade payables turnover of 28 days means	The business takes 28 days on average to pay its credit suppliers (not the time it is allowed)
Which of a customer's ratios shows how long it takes to pay for goods bought on credit	That customer's trade payables turnover
Which ratio is no use for a service business	Rate of inventory turnover
Which ratio matters to someone paid per item sold	Rate of inventory turnover

Effect of a change: work out which side of the ratio moves. Reducing the provision for doubtful debts raises net trade receivables, so the liquid and current ratios rise; a change in inventory doesn't affect the liquid ratio; paying a trade payable from the bank lowers both sides.

5. Calculate current ratio and liquid (acid test) ratio (12 questions)

1. **Sort the list** into current assets and current liabilities. Leave out non-current assets, capital and loans repayable after 12 months.
2. **Current ratio:** total current assets ÷ total current liabilities. Write the whole formula with figures, e.g. 21 700 : 8 400 (**1**).
3. **Liquid ratio:** the same, with inventory taken out of the top.
4. Answer to two decimal places "**1**": here $21\,700 : 8\,400 = 2.58 : 1$, not 2.58 or 3 : 1.

Variations you will meet:

- **Two bank loans:** the one repayable within a year is a current liability; the other is not.
- **Other receivables and cash in hand** are current assets; other payables and a bank overdraft are current liabilities.
- **Only some figures are liquid:** if the question gives trade receivables and an overdraft but no cash, the liquid assets are just the trade receivables.
- **A liquid ratio below 1** (e.g. 0.45 : 1) is still written with ": 1".

6. Explain a ratio's change or suggest ways to improve it (11 questions)

Paper 2, usually "suggest two" for 2 marks, one mark per different, specific point. Answer the ratio asked about, not ratios in general.

To improve	Suggest
Gross margin	Raise selling prices; buy more cheaply (a new supplier, bulk buying, trade discount); sell more of the goods with the highest margin
Profit margin	Improve gross profit (as above); cut expenses (wages, rent, advertising); earn more other income
ROCE	Raise profit (cut expenses, sell more); reduce capital employed (repay a long-term loan, withdraw capital that isn't needed)
Rate of inventory turnover	Sell more (advertising, special offers, lower prices); hold less inventory (buy smaller amounts more often, "just in time")
Trade receivables turnover (shorter)	Tighter credit control; send invoices and statements promptly; offer cash discount for early payment; charge interest on overdue debts; stop credit to slow payers
Liquidity (current and liquid ratios)	Collect debts faster; sell off surplus inventory; the owner pays in more capital; replace the overdraft with a long-term loan

Problems a ratio can signal, also asked:

- **Slower inventory turnover:** goods may deteriorate or go out of date; higher storage and insurance costs; cash tied up in inventory, perhaps an overdraft and interest.
- **Falling profit margin:** expenses are growing faster than sales; if the trend continues the business may make a loss and be unable to pay its expenses and suppliers.
- **Receivables taking longer to pay,** and why this can lower the profit margin: more debts may become irrecoverable, and the provision for doubtful debts may have to rise (both expenses); short of cash, the business may pay suppliers late and lose cash discounts, be charged interest by suppliers, or pay more overdraft interest.
- **Gross margin higher with the same selling price:** the goods must have cost less (lower purchase prices or trade discount), or the mix of goods sold changed.

7. Calculate trade receivables or trade payables turnover (days) (10 questions)

1. Pick out **credit** sales (or credit purchases) and the **closing trade** receivables (or payables).
2. Write the whole formula with the figures: $\frac{12\,600}{140\,000} \times 365$ **(1)**.
3. Work it out and **round up to the next whole day**, writing "days" **(1)**.

Variations you will meet:

- **Cash and credit sales both given:** use only the credit sales. For credit purchases \$84 000 (cash purchases \$25 000) and payables \$9 300: $9\,300 \div 84\,000 \times 365 = 40.41$, so 41 days.
- **Other receivables listed as well:** leave them out.
- **All sales on credit** (the question says the trader "sells on credit"): revenue is the credit sales.
- **"Round up"** means 41.5 becomes 42 and 40.3 becomes 41. Occasionally the question asks for two decimal places instead; follow what is printed.

8. Work backwards from a given ratio to a missing figure (8 questions)

Paper 1, 1 mark. Write the ratio as an equation, put in what you know and solve.

- **Liquid ratio → a liability.** Liquid ratio 1.5 : 1, trade receivables \$21 000 (the only liquid asset), trade payables \$9 500: current liabilities = $21\,000 \div 1.5 = 14\,000$, so the bank overdraft is $14\,000 - 9\,500 = 4\,500$.
- **Liquid ratio → current assets.** Liquid ratio 1.8 : 1, current liabilities \$15 000, inventory \$11 000: liquid assets = 27 000, so current assets = $27\,000 + 11\,000 = 38\,000$ (add the inventory back).
- **Change in receivables days → change in receivables.** Credit sales \$73 000 both years, receivables days five longer: change = $5 \times 73\,000 \div 365 = 1\,000$, an **increase** (shorter days would mean a decrease).
- **Two margins → expenses.** Revenue \$48 000, gross margin 35%, profit margin 12%: gross profit \$16 800, profit \$5 760, so expenses \$11 040 (the gap between the margins, 23% of revenue).
- **Margin on total sales.** Credit sales \$54 000 are 75% of total sales (cash sales are 25%), so revenue is $54\,000 \div 0.75 = 72\,000$, and a 15% profit margin gives profit \$10 800.
- **ROCE → profit.** Non-current assets \$95 000, current assets \$37 000, current liabilities \$12 000: capital employed = 120 000, and a ROCE of 14% means profit **before** interest of \$16 800.

Worked examples

Example 1

A trader provided the following information for the year. There was no other income.

	\$
cost of sales	54 000
expenses	18 000
profit for the year	12 000

What was the gross margin? **[1]**

A 14.29% B 35.71% C 55.56% D 64.29%

Gross profit = $18\,000 + 12\,000 = 30\,000$; revenue = $54\,000 + 30\,000 = 84\,000$. Gross margin = $30\,000 \div 84\,000 \times 100 = 35.71\%$. **B (1)**

A is the profit margin; C divides by cost of sales (the mark-up); D is cost of sales as a share of revenue.

Example 2

A business has current liabilities of \$15 000. Its current ratio is 2.4 : 1 and its liquid (acid test) ratio is 1.5 : 1. What is the value of its inventory? [1]

A \$9 000 B \$13 500 C \$22 500 D \$36 000

Current assets = $2.4 \times 15\,000 = 36\,000$; liquid assets = $1.5 \times 15\,000 = 22\,500$. Inventory = $36\,000 - 22\,500 = 13\,500$. **B (1)**

Example 3

Leila is a trader. She provided the following information for the year ended 31 December 2025.

	\$
Inventory at 1 January 2025	8 400
Revenue: credit sales	120 000
Revenue: cash sales	30 000
Purchases (all on credit)	96 000
Expenses (including loan interest of \$1 800)	31 200

At 31 December 2025:

	\$
Inventory	9 600
Trade receivables	13 000
Cash at bank	2 350
Trade payables	8 900
Other payables	600
Capital	110 000
6% bank loan (repayable 2030)	30 000

(a) Calculate, to two decimal places, the gross margin, the profit margin and the return on capital employed. [6]

(b) Calculate the rate of inventory turnover (to two decimal places), and the trade receivables and trade payables turnover (each rounded up to the next whole day). [7]

(c) Calculate, to two decimal places, the current ratio and the liquid (acid test) ratio. [4]

(a) Revenue = $120\,000 + 30\,000 = 150\,000$. Cost of sales = $8\,400 + 96\,000 - 9\,600 = 94\,800$, so gross profit = $150\,000 - 94\,800 = 55\,200$ **(1)**.

Gross margin = $\frac{55\,200}{150\,000} \times 100 = \mathbf{36.80\%}$ **(1)OF**

Profit for the year = $55\,200 - 31\,200 = 24\,000$ **(1)OF**. Profit margin = $\frac{24\,000}{150\,000} \times 100 = \mathbf{16.00\%}$ **(1)OF**

ROCE = $\frac{24\,000 + 1\,800}{110\,000 + 30\,000} \times 100 = \frac{25\,800}{140\,000} \times 100 = \mathbf{18.43\%}$: **(1)** for adding back the interest and adding the loan to capital, **(1)OF** for the answer.

(b) Average inventory = $(8\,400 + 9\,600) \div 2 = 9\,000$ (1). Rate of inventory turnover = $\frac{94\,800}{9\,000} = 10.53$ times (1) for cost of sales on top, (1)OF for the answer.

Trade receivables turnover = $\frac{13\,000}{120\,000} \times 365 = 39.54$, so **40 days** (1) formula with credit sales only, (1) answer.

Trade payables turnover = $\frac{8\,900}{96\,000} \times 365 = 33.84$, so **34 days** (1) formula with credit purchases, (1) answer.

(c) Current assets = $9\,600 + 13\,000 + 2\,350 = 24\,950$; current liabilities = $8\,900 + 600 = 9\,500$ (the loan is repayable in 2030, so it is not current).

Current ratio = $24\,950 : 9\,500 = 2.63 : 1$ (1) whole formula, (1)OF answer.

Liquid ratio = $(24\,950 - 9\,600) : 9\,500 = 15\,350 : 9\,500 = 1.62 : 1$ (1) whole formula, (1)OF answer.

Example 4

K Limited provided the following information at 31 March 2025.

	\$
Ordinary share capital	150 000
General reserve	20 000
Retained earnings	34 000
4% debentures (repayable 2032)	50 000

The profit for the year ended 31 March 2025 was \$21 000, after charging a full year's debenture interest.

(a) Calculate the return on capital employed, to two decimal places. [3]

(b) The return on capital employed for the previous year was 12.10%. State whether it has improved or worsened, and suggest **two** ways the directors could improve it. [3]

(a) Debenture interest = $4\% \times 50\,000 = 2\,000$, so profit before interest = $21\,000 + 2\,000 = 23\,000$ (1).

Capital employed = $150\,000 + 20\,000 + 34\,000 + 50\,000 = 254\,000$ (1).

ROCE = $\frac{23\,000}{254\,000} \times 100 = 9.06\%$ (1)OF

(b) It has **worsened**, from 12.10% to 9.06%: each \$100 of capital now earns less profit (1).

- Increase the profit for the year, for example by cutting expenses or raising selling prices (1).
- Reduce capital employed, for example by repaying the debentures early if the company has spare cash (1).

Common mistakes

- **No workings.** Examiners repeatedly say they couldn't trace the figures used, so a single wrong number lost every mark. Write the formula with the figures in; that line earns marks even if the answer is wrong.
- **No units.** "36.8" earns less than "36.80%". Margins and ROCE need %, inventory turnover needs "times", the turnover periods need "days", and the current and liquid ratios need ": 1".
- **Wrong decimal places or rounding.** Give two decimal places when asked (16.00%, not 16%). Days are rounded **up** to the next whole day: 21.2 is 22 days, not 21.
- **Gross profit wrong at the start.** Cost of sales is opening inventory + purchases – closing inventory; forgetting cash sales in revenue, or mixing up opening and closing inventory, ruins every ratio after it.

- **Leaving out other income** when working out profit for the year.
- **Inventory turnover with the wrong formula:** revenue or purchases on top, or closing inventory instead of the average.
- **Inventory left in the liquid ratio**, or a bank overdraft treated as an asset.
- **ROCE without adding back interest**, or using capital alone when there is a loan. For a company, candidates often rebuild capital employed from scratch and go wrong; take the equity total from the statement of financial position and add the debentures.
- **Total sales or purchases in the turnover-days ratios**, or other receivables included with trade receivables.
- **Just saying "it went up"**. When a question gives last year's figure, say whether the ratio has **improved or worsened**, and read carefully which figure belongs to which year.
- **General answers**. "Improve efficiency" earns nothing; name a real action tied to the ratio asked about.

How to get the marks

- **"Calculate"**: formula with the figures from the question, then the answer with its unit. Most ratios are worth 2 or 3 marks: 1 for the key figure (gross profit, cost of sales, average inventory, profit before interest, capital employed), 1 for the whole formula, 1 for the answer.
- **Own-figure (OF) marks**: a wrong gross profit used correctly in the profit margin and ROCE still earns the later marks. Keep going, and show which figure you used.
- **Two decimal places** for percentages, times and ratios unless told otherwise; **round up** days. Don't round in the middle of a calculation.
- **Label** each answer in a table with the ratio's unit; write the liquid ratio as "1.62 : 1".
- **"Suggest" or "state"**: one short, specific point per mark, each different. "Reduce expenses" and "cut costs" are the same point.
- **"Explain"**: link cause and effect, e.g. "customers pay more slowly → more debts may become irrecoverable → an extra expense → a lower profit margin".
- **Multiple choice**: write the formula first, then check each wrong option: the distractors are usually the mark-up instead of the margin, total instead of credit figures, or profit after interest instead of before.

Quick check

1. A trader's revenue was \$60 000 and gross profit was \$21 000. Calculate (a) the gross margin and (b) the mark-up, each to two decimal places.
2. A trader's credit purchases were \$73 000 and cash purchases \$12 000. Trade payables at the year end were \$7 450. Calculate the trade payables turnover, rounded up to the next whole day.
3. A business has inventory \$6 200, trade receivables \$4 900, other receivables \$300, cash \$1 100, trade payables \$5 800, a bank overdraft \$1 700 and a bank loan of \$10 000 repayable in three years. Calculate the current ratio and the liquid (acid test) ratio.
4. A trader's credit sales were \$146 000 in each of two years. The trade receivables turnover fell from 45 days to 30 days. By how much did trade receivables change?
5. A trader's rate of inventory turnover has fallen from 9 times to 6 times. State two problems this may cause.

Answers

1. (a) $21\,000 \div 60\,000 \times 100 = 35.00\%$. (b) Cost of sales = $60\,000 - 21\,000 = 39\,000$; mark-up = $21\,000 \div 39\,000 \times 100 = 53.85\%$.
2. $7\,450 \div 73\,000 \times 365 = 37.25$, rounded up to **38 days** (credit purchases only).
3. Current assets = $6\,200 + 4\,900 + 300 + 1\,100 = 12\,500$; current liabilities = $5\,800 + 1\,700 = 7\,500$ (the loan is non-current). Current ratio = $12\,500 : 7\,500 = 1.67 : 1$. Liquid ratio = $6\,300 : 7\,500 = 0.84 : 1$.
4. Change = $15 \times 146\,000 \div 365 = 6\,000$: trade receivables **decreased by \$6 000** (from \$18 000 to \$12 000).
5. Any two: goods may deteriorate or become out of date; storage and insurance costs rise; more cash is tied up in inventory, which may mean an overdraft and interest.

Past questions to try

- **0452/22/O/N/24 Q5**: inventory turnover and both turnover-days ratios, then ways to collect debts faster.
- **0452/21/M/J/24 Q4**: inventory turnover, current ratio and liquid ratio from ledger balances, then the problems of slower inventory turnover.
- **0452/13/O/N/23 Q34**: working backwards from a change in receivables days.
- **0452/12/F/M/23 Q32**: the current ratio from a mixed list with two bank loans.