

STUDY
Mate

ISSUE 17 2008

Mathematics

Mathematical Literacy

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Business Studies

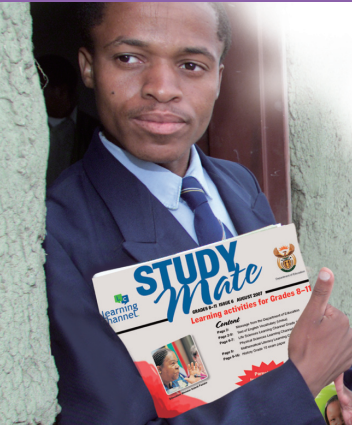
History

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GRADE 12

118 DAYS
before final
exams!





Accounting and Mathematical Literacy Exemplar Papers – extracts from OUP Exam Success

ACCOUNTING

Sample Exam Paper 1

QUESTION 3 (DOE 2005)

CASH BUDGET

(60 marks; 27 minutes)

You are provided with an incomplete Cash Budget and Debtors Collection Schedule of **Dundee Limited**.

REQUIRED:

1. Complete the Debtors Collection Schedule by inserting the missing figures indicated by asterisks(*). (10)

2. Cash budget for the three months ended 31 March 2006. (47)

3. If you were the accountant of this business, which item in the budget would you want to investigate? Name the item and give a reason. (3)

INFORMATION:

Balances on 31 December 2005

Ordinary share capital of R2 each	600 000
Bank overdraft	8 600
Creditors control	60 000
Long-term loan (15% p.a.)	80 000

ADDITIONAL INFORMATION:

1. Sales: 75% of the total sales are cash sales
Actual and projected credit sales are as follows:
Actual: November R28 000, December R30 000
Budgeted: January R24 000, February R28 000, March R24 000

2. Debtors are expected to pay as follows:
50% in the transaction month, subject to 5% discount
30% in the month following the transaction month
15% in the second month after the transaction month
5% will be written off as bad debts after the third month.

3. Rent income will be increased by 10% on 1 February 2006.

4. Operating expenses are expected to increase by R500 from month to month.

5. An additional loan of R70 000 will be taken out on 1 March 2006 at the existing interest rate. Interest on the loan is paid monthly.

6. 80 000 new shares are to be issued at a premium of 100 cents on 1 February 2006. The business needs these funds to purchase a delivery vehicle in May 2006, which is expected to cost over R200 000.

7. The company plans to declare an interim dividend of 10 cents per share on 28 February 2006. This will be paid during March 2006.

8. All goods are bought on credit. Creditors are paid one month after the month of purchase subject to 10% discount for prompt payment. Credit purchases are/ will be:

December	January	February	March
R60 000	R48 000	R56 000	R48 000

9. Monthly advertising costs are budgeted at 2% of total sales for the month.

10. A general increase of 3% in salaries and wages takes effect on 1 March 2006.

11. A second provisional income tax amount will be paid on 28 February 2006. The following details will be used to calculate the amount to be paid:

The projected net profit for the financial year is R240 000.
The income tax payable is 32% of the net profit.
Amount of provisional income tax already paid is R39 000.

12. Interest on the bank account is paid or received every month and is calculated (to the nearest rand) on the balance as at the 1st day of each month as follows:
18% per annum on unfavourable balance (overdraft)
6% per annum on favourable balance.

1. Debtors collection schedule

Credit sales per month	2006 January	2006 February	2006 March
November	28 000	4 200	
December	30 000	9 000	4 500
January	24 000	11 400	7 200
February	28 000	*	*
March	24 000		*
	24 600	*	*

2. DUNDEE LIMITED

Cash budget for the quarter ending 31 March 2006

CASH RECEIPTS	January	February	March
Cash sales	72 000		
Receipts from debtors	24 600		
Rent income	12 000		
Interest on current bank account	–		
Total receipts	108 600		
CASH PAYMENTS			
Payments to creditors	54 000		
Operating expenses	13 500		
Interest on loan	1 000		
Advertising	1 920		
Salaries and wages	94 300		
Interest on overdraft	129		
Total payments	164 849		
CASH SURPLUS (DEFICIT)	(56 249)		
Bank balance at beginning of month	(8 600)		
Bank balance at end of month	(64 849)		

3. Item in the budget for investigation (and reason)



ACCOUNTING

QUESTION 4 (IEB 2003)

COMPANIES (77 marks; 46 minutes)

You are provided with an incomplete Cash Flow Statement and Balance Sheet of Sharks Ltd on 31 October 2003.

REQUIRED:
Complete the Cash Flow Statement and the Balance Sheet by filling in the missing numbers indicated by an *. The notes for Trade and other payables and Cash generated from operations are also required. (77)

- INFORMATION:
- Sharks Ltd has an authorised share capital of 600 000 shares with a par value of R2 each. As at 31 October 2003, their financial year-end, they had issued 520 000 shares.
 - On 1 November 2002 they issued shares at a premium of 50 cents. No other shares were issued during the year.
 - The income tax expense for the year is R133 713.
 - The earnings per share (after tax) for 2003 were 60 cents.
 - The dividends per share (DPS) for 2003 were 55 cents.
 - The net asset value per share (NAV) on 31 October 2003 was 221 cents.
 - Land and buildings were bought during the year, and equipment was sold at book value.
 - The current ratio for 2003 is 2,1 : 1.
 - The acid test ratio for 2003 is 0,9 : 1.

SHARKS LTD		
Balance Sheet as at 31 October 2003		
	2003	2002
ASSETS		
Non-current assets	959 400	841 900
Tangible / fixed assets	959 400	841 900
Current assets	*	*
Inventory	*	*
Trade and other receivables	74 000	*
Cash and cash equivalents	*	*
Total assets	*	*
EQUITY AND LIABILITIES		
Capital and reserves	*	*
Ordinary share capital	1 040 000	*
Ordinary share premium	*	40 000
Retained income / Accumulated profit	*	*
Non-current liabilities	*	20 000
Current liabilities	218 000	*
Trade and other payables	218 000	*
Total equity and liabilities	*	*
Trade and other payables	2003	2002
Trade creditors	*	*
Accrued expenses (interest on loan)	380	250
SARS: Income tax	22 000	20 000
Shareholders for dividends	*	157 500
	218 000	*

SHARKS LTD
Cash Flow Statement for the year ended 31 October 2003

	2003
Cash flows from operating activities	*
Cash receipts from customers	*
Cash paid to suppliers and employees	(800 000)
Cash generated from operations	505 820
Interest paid	*
Dividends paid	(287 500)
Tax paid	*
Cash flows from investing activities	*
Purchases of tangible / fixed assets	(200 000)
Proceeds from sale of tangible / fixed assets	*
Cash flows from financing activities	*
Proceeds from issue of shares	175 000
Proceeds from long term borrowings	30 000
Net change in cash and cash equivalents	*
Cash and cash equivalents: beginning of year	*
Cash and cash equivalents: end of year	*

Notes to the cash flow statement

1. Reconciliation between profit before tax and cash generated from operations
- Profit before taxation
- Adjustment in respect of:
- Depreciation
- Interest expense
- Operating profit before changes in working capital
- Changes in working capital
- Increase / decrease in inventory
- Increase / decrease in debtors
- Increase / decrease in creditors
- Cash generated from operations

QUESTION 5

INTERNAL CONTROLS AND ASSET DISPOSAL (80 marks; 48 minutes)

You are the internal auditor of Shinny SA Ltd. The companies make different flavours Shinny soft drinks.

REQUIRED:

- Explain the principles of audit sampling. (15)
- Describe which assets you are going to select for verification? (12)
- What internal controls procedure should the company have that you can test in your audit of fixed assets? (21)
- Complete the following table to indicate how all the different transaction relating to Machine M049 will recorded: (32)

Transaction and date	Account debited	Account credited	Amount
----------------------	-----------------	------------------	--------

INFORMATION

Shinny SA uses 50 machines to product the soft drinks it sells. You are currently busy with the annual audit of fixed assets. The audit procedure you want to perform is to physically verify that the machines exist.

All the assets of the company are recorded in the companies asset register. The machines in the asset register are number from M001 to M050.

You want to select a systematic sample of 5 machines, starting with asset number M002.

When you were busy with you audit the company directors decided to sell Machine M049. The machine was bought on 1 October 20.3 for R199 500 (including VAT). The company sold the asset on 30 June 20.4 for R150 000 (excluding VAT).

The company has a 31 December year end and machines are written of over a five year period on the straight line method.

QUESTIONS:

- Explain the principles of audit sampling. (15)
- Describe which assets you are going to select for verification? (12)
- What internal controls procedure should the company have that you can test in your audit of fixed assets? (21)
- Complete the following table to indicate how all the different transaction relating to Machine M049 will recorded: (32)

Transaction and date	Account debited	Account credited	Amount
Purchase: 1 October 20.3			
Depreciation for 20.3 year: 31 December 20.3			
Depreciation for 20.3 year: 30 June 20.4			
Sale of asset: 30 June 20.4			

Solutions

QUESTION 3

1. Debtors collection schedule (10)

Credit sales per month		2006 January	2006 February	2006 March
November	R28 000	4 200	4 200	
December	30 000	9 000	9 000	
January	24 000	11 400	7 200	3 600
February	28 000		13 300*	8 400*
March	24 000			11 400*
		24 600	25 000*	23 400*

2. Dundee Limited (47)

Cash budget for the quarter ending 31 March 2006				
CASH RECEIPTS	January	February	March	
Cash sales	72 000	84 000	72 000	72 000
Receipts from debtors	24 600	25 000	23 400	23 400
Rent income	12 000	13 200	13 200	13 200
Interest on current bank account	-			519
Share issue		240 000		
Total receipts	108 600	362 200	109 119	
CASH PAYMENTS				
Payments to creditors	54 000	43 200	50 400	50 400
Operating expenses	13 500	14 000	14 500	14 500
Interest on loan	1 000	1 000	1 875	1 875
Advertising	1 920	2 240	1 920	1 920
Salaries and wages	94 300	94 300	97 129	97 129
Interest on overdraft		129	973	
Dividends				38 000
Provisional tax (76 800 – 39 000)		37 800		
Total payments	164 849	193 513	203 824	203 824
CASH SURPLUS (DEFICIT)	(56 249)	168 687	(94 705)	(94 705)
Bank balance at beginning of month	(8 600)	(64 849)	103 838	103 838
Bank balance at end of month	(64 849)	103 838	9 133	9 133

3. Salaries and wages – it is very high, making up almost half of the total cash payments each month. (3)

QUESTION 4

Sharks Ltd		
Balance Sheet as at 31 October 2003		
	2003	2002
ASSETS		
Non-current assets	959 400	841 900
Tangible / fixed assets	959 400	841 900
Current assets	457 800*	355 860*
Inventory	261 600*	251 100*
Trade and other receivables	74 000	82 600*
Cash and cash equivalents	122 200*	22 160*
Total assets	1 417 200*	1 197 760*
EQUITY AND LIABILITIES		
Capital and reserves	1 149 200*	948 200*
Ordinary share capital	1 040 000	900 000*

ACCOUNTING

Ordinary share premium	75 000*	40 000
Retained income / Accumulated profit	34 200*	8 200*
Non-current liabilities	50 000*	20 000
Current liabilities	218 000	229 560*
Trade and other payables	218 000	229 560*
Total equity and liabilities	1 417 200*	1 197 760*
Trade and other payables	2003	2002
Trade creditors	39 620*	51 810*
Accrued expenses (interest on loan)	380	250
SARS: Income tax	22 000	20 000
Shareholders for dividends	156 000*	157 500
	218 000	229 560*

Sharks Ltd
Cash Flow Statement for the year ended 31 October 2003

	2003
Cash flows from operating activities	79 540*
Cash receipts from customers	1 305 820*
Cash paid to suppliers and employees	(800 000)
Cash generated from operations	505 820
Interest paid	(7 067)*
Dividends paid	(287 500)
Tax paid	(131 713)*
Cash flows from investing activities	(184 500)*
Purchases of tangible / fixed assets	(200 000)
Proceeds from sale of tangible / fixed assets	15 500*
Cash flows from financing activities	205 000*
Proceeds from issue of shares	175 000
Proceeds from long term borrowings	30 000
Net change in cash and cash equivalents	100 040*
Cash and cash equivalents: beginning of year	22 160*
Cash and cash equivalents: end of year	122 200*

Notes to the cash flow statement

1.Reconciliation between profit before tax and cash generated from operations

Profit before taxation (312 000 + 133 713)	445 713*
Adjustment in respect of:	74 197*
Depreciation	67 000
Interest expense	7 197*
Operating profit before changes in working capital	519 910
Changes in working capital	(14 090)*
Increase / decrease in inventory	(10 500)*
Increase / decrease in debtors	8 600
Increase / decrease in creditors	(12 190)
Cash generated from operations	505 820

In order to solve this question you need to use information provided in the question, as well as in the partially completed answer!

The specific ratios were given for a reason!

Write out the full ratio as one would normally use it during a calculation and it will be clear that one of the figures is a missing amount – remember that you already have the answer!

This figure can then be calculated by solving for X, because all the other figures that make up the ratio are unknown. (77)

QUESTION 5

INTERNAL CONTROLS AND ASSET DISPOSAL (80 marks; 48 minutes)

1 In performing audit procedures it is not always possible to verify 100% of all the transactions, statistical sampling is thus a method of selecting less than 100% of all the transactions. Audit sampling means that

the audit procedures will be performed on less than 100. Not all the transactions in the cash receipts journals and cash payment journal will be selected to apply audit procedures on. This will enable the auditor to obtain and evaluate audit evidence about some of the characteristics of the items selected in order to form or assist in forming a conclusion concerning the population. If 10 out of 100 cheques issued during the period under revision is selected and the auditor wants to verify that the expenses were authorised he will check all the supporting documents for those 10 items selected in detail. The result of the sample is used to reported on the population. (15)

2 A systematic sample means you will select items based on their numbers and the items are selected based on the total number of assets and the size of the sample you want to select. In this case you want to select 5 items form the total of 50 items.

You want to select every $\frac{50}{5} = 10^{\text{th}}$ item, starting at number M002. You will therefore select numbers M002, M012 (being 002 + 10); M022, M032; M042. (12)

3 Internal controls over fixed assets

- A capital budget should be prepared for the year.
- A orders to purchase assets required should be compared to the capital budget to ensure there is budgeted for the item.
- All order should be authorised.
- Fixed asset received should be compared to the invoice and purchase order to ensure it is the assets that were ordered.
- The details of the fixed asset records in the journal and the fixed asset register.
- Legal documents proving ownership, for example deeds, sales contracts, should be kept in a safe place.
- A depreciation policy should be established determined and documented. Depreciation should be recorded as set out the policy.
- All fixed assets should periodically be physical inspected. (21)

4 Disposal

Transaction and date	Account debited	Account credited	Amount
Purchase: 1 October 20.3	Machinery	Bank	175 000
	Input VAT	Bank	24 500
Depreciation for 20.3 year: 31 December 20.3	Depreciation	Accumulated depreciation : Machinery	8 750
Depreciation for 20.3 year: 30 June 20.4	Depreciation	Accumulated depreciation : Machinery	17 500
Sale of asset: 30 June 20.4	Bank	Asset disposal	150 000
	Bank	Output VAT	21 000
	Asset disposal	Machinery	175 000
	Accumulated depreciation : Machinery	Asset disposal	26 500

Calculations

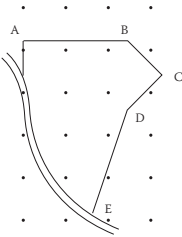
- Purchase price:
Amount including VAT 199 500
VAT 24 500
Amount excluding VAT 175 000
- Depreciation 20.3
 $\frac{R175\,000}{5\text{ years}} \times \frac{3}{12} = R8\,750$
- Depreciation 20.4
 $\frac{R175\,000}{5\text{ years}} \times \frac{6}{12} = R17\,500$
- VAT on sale:
 $R150\,000 \times 14\% = R21\,000$
- Total accumulated depreciation
 $= R8\,750 + R17\,500 = R26\,500$ (32)

MATHEMATICAL LITERACY

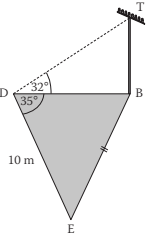
- 3.5 Give the ranges of speed for which the safest tyre is:
- Solido
 - Tough
 - Hot Stuff
- (6)
- 3.6 Is the Hot Stuff advert correct to say that Hot Stuff is the safest tyre over most speeds? Confirm your answer by calculating the size of the range for which Hot Stuff is safest, compared to the other two brands. (3)
- 3.7 Is the advert being in any way *misleading* for drivers in South Africa to claim that Hot Stuff is the safest tyre over most speeds? Explain your answer. (3)
- 3.8 Judging from the graph, what tyre would you recommend for someone who drives mostly in heavy traffic and for someone who drives mostly on empty highways? (2)
- [22]

Question 4

4.1 Below is the plan of a plot of land that borders on a winding road. The small squares formed by every 4 dots each represent 1 hectare (ha) of land area.



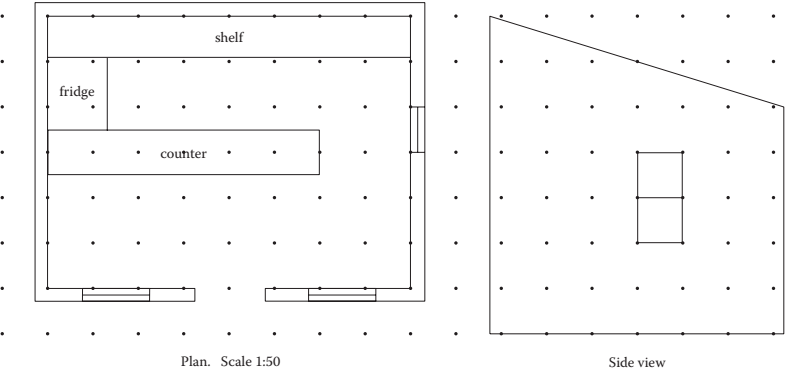
- 4.1.1 Divide the plan into convenient parts and make an estimate of the area of the plot. (5)
- 4.1.2 If the distance between two consecutive dots (horizontally or vertically) is 100 m, make an estimate of the length of the border AE along the road. (1)
- 4.1.3 Use Pythagoras' theorem to calculate the lengths of BC, CD and DE. (4)
- 4.1.4 Calculate the approximate perimeter of the plot to the nearest whole metre. (3)
- 4.2 In the sketch below B, D and E are points in the horizontal plane. TB is a vertical telephone mast. The angle of elevation of T from D is 32°. DB = BE; DE = 10 m and $\angle BDE = 35^\circ$.



- Calculate:
- 4.2.1 DB (4)
- 4.2.2 the area of $\triangle BDE$ (2)
- 4.2.3 the height of the mast (3)
- [22]

Question 5

5 The plan and side view of a small shop is shown below. The scale used is 1 : 50.



- 5.1 What is the actual length (in m) of a measurement of 30 mm on the plan? (1)
- 5.2 What measurement (in mm) on the plan will represent an actual length of 2 m? (1)
- 5.3 Estimate (to the nearest $\frac{1}{2}$ metre) the external length and width of the building. (2)
- 5.4 On the plan measure the following and give the actual dimensions:
- the width of the walls (in mm)
 - the internal length and width of the building (in m)
 - the width of the door (in mm)
- (3)
- 5.5 On the side view, measure the following and give the actual dimensions:
- the highest point of the roof above the foundation level
 - the height of the wall at the back of the building.
- (2)
- 5.6 On cm²-dotted paper (or graph paper) draw a front view of the shop according to the same scale (1 : 50). The windows are 1 m above the foundation level and 1 m high; the door is 2 m high. (6)
- [15]

Question 6

- 6.1 Bongi owns a toy shop. From time to time he runs promotions to try and attract more customers to his shop.
- 6.1.1 The bouncing balls come in five colours. If a child chooses a yellow or a blue ball, one parent receives a free pen. For each ball given away, what is the probability that the parent receives a pen? (2)
- 6.1.2 After four days of this promotion, 356 balls were given away, of which 85 were yellow balls. What was the relative frequency of a yellow ball being chosen? (2)
- 6.1.3 In the dinosaur promotion a child wins a plastic dinosaur if he/she scratches the winning combination on the scratch card in the diagram on the right. Draw a tree diagram that can be used to determine all probabilities for this scratch card. (6)
- 6.1.4 What is the probability of a customer scratching a winning combination? (2)



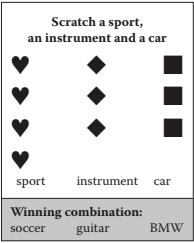
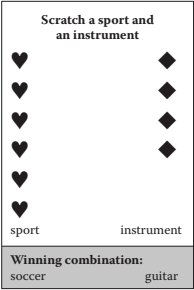
Scratch a sport and an instrument		(2)
♥	♦	(2)
♥	♦	
♥	♦	
♥	♦	
sport	instrument	(6)
Winning combination: soccer	guitar	(2)

MATHEMATICAL LITERACY

- 6.2 After a few days of the promotion Bongi finds that he gives away too many dinosaurs. He wants to use a new scratch card so that fewer customers will win dinosaurs. The diagrams below show two other scratch cards that he could use. Which one should result in the fewest correct combinations? Explain your answer by showing, for each card, the total possible outcomes, and the probability of scratching the winning combination.



(6)



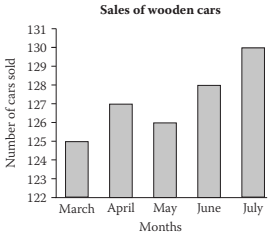
(The hearts and diamonds represent the number of possibilities, but only one of each may be scratched by a customer)

- 6.3 Bongi used young salespersons to demonstrate a new computer game at four different positions in the shop. 200 pamphlets were distributed. Table 1 shows how many shoppers just took a pamphlet about the game, and how many actually watched the demonstration of the game. Bongi is wondering if the positioning of the salesperson in the shop affects the probability of a customer taking the time to watch the demonstration.

Table 1

	Took pamphlet only	Watched demonstration	Total
Shop entrance	43	12	55
Next to tills	31	4	35
At computer games section	28	25	53
At toy cars section	25	32	57
Total	127	73	200

- 6.3.1 What is the probability of a shopper watching the demonstration:
- i at the shop entrance
 - ii near the tills
 - iii at the computer games section
 - iv at the toy cars section?
- 6.3.2 What is the probability of any shopper watching the demonstration? (4)
- 6.3.3 Is it correct to say that the chance of a shopper watching the demonstration depends on where in the shop the demonstration is held? Give a reason for your answer. (1)
- 6.4 Bongi is approached by a person called Tom, who says: "Hi, my name is Tom. I make these wooden cars. Would you like to sell them in your shop? This graph shows how many of these cars I have sold to shops in the last five months."
- 6.4.1 Study the axes on Tom's graph. What do you notice? (2)
- 6.4.2 Redraw Tom's graph, using a y-axis calibrated in 20s from 0 to 140. (8)
- 6.4.3 What does your graph show about Tom's sales of wooden cars – are the sales increasing sharply or not? (2)



Total: 150

Mock exam: Paper 2

MEMORANDUM

- 3.5 Solido: from 20 km/h to 76 km/h.
Tough: from 76 km/h to 124 km/h.
Hot Stuff: from 124 km/h to 280 km/h. (6)
- 3.6 Yes. Hot Stuff is safest over a range of $280 - 124 = 156$ km/h. This range is greater than Solido ($76 - 20 = 56$ km/h) and Tough ($124 - 76 = 48$ km/h). (3)
- 3.7 Yes. For South African drivers, the relevant speeds are up to 120 km/h, because that is the highest speed limit on SA roads. At those speeds, Hot Stuff is not the safest tyre. It is only the safest tyre for higher speeds, which are not relevant to SA drivers. (3)
- 3.8 Heavy traffic: speeds will be slow, so Solido is the safest. Open highways: speeds will be faster, so Tough is safest. (If the driver exceeds the national speed limit of 120 km/h, Hot Stuff becomes the safest.) (2)

Question 4

- 4.1.1 One convenient division into parts is shown alongside.

Exact area part (1) = 3 ha
Exact area part (2) = 4 ha
Exact area part (3) = 1 ha ($2 \times \frac{1}{2}$ ha)
Exact area part (4) = 1,5 ha ($\frac{1}{2}$ of 3 ha)
Estimated area of part (5) $\approx$ 0,6 ha
Estimated area of part (6) $\approx$ 2,2 ha ($0,9 + 0,8 + 0,5$ ha)
Thus total area of plot $\approx$ 12,3 ha

- 4.1.2 Estimated length of AE $\approx$ 550 m

- 4.1.3 $\triangle BCD$ is isosceles with $BC = CD$ and $BD = 200$ m
 $\widehat{BCD} = 45^\circ + 45^\circ = 90^\circ$
 $\therefore BC^2 + CD^2 = BD^2$ (Theorem of Pythagoras)

Suppose $BC = CD = x$ m

Then $x^2 + x^2 = (200 \text{ m})^2$

$\therefore 2x^2 = 40\,000 \Rightarrow x^2 = 20\,000$

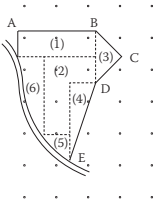
$\therefore x = \sqrt{20\,000} = 141,42$ m

Thus $BC = CD \approx 141,42$ m

In the right-angled $\triangle$ with DE as hypotenuse:

$DE^2 = (300 \text{ m})^2 + (100 \text{ m})^2 = 90\,000 + 10\,000 = 100\,000 \text{ m}^2$

$\therefore DE = \sqrt{100\,000} = 316,23$ m

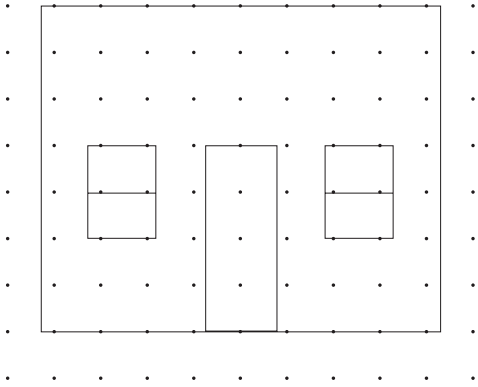


(5)
(1)

- 4.1.4 Approximate perimeter of plot $\approx AB + BC + CD + DE +$ estimated length of curve AE
 $= 300 + 141,42 + 141,42 + 316,23 + 550$ m
 $= 1\,449,07$ m $\approx 1\,449$ m (3)
- 4.2.1 Since $DB = BE$, $\angle E = \widehat{DBE} = 35^\circ$
Therefore, $\widehat{DBE} = 180^\circ - 70^\circ = 110^\circ$
Now use the sine formula in $\triangle DBE$ to calculate DB:
 $\frac{DB}{\sin 35^\circ} = \frac{10}{\sin 110^\circ} \Rightarrow DB = 6,10$ m (4)
- 4.2.2 Area of $\triangle DBE = \frac{1}{2}(10)(6,1) \sin 35^\circ = 17,5$ m² (2)
- 4.2.3 In $\triangle DBT$: $\tan 32^\circ = \frac{TB}{DB} = \frac{TB}{6,10}$
 $\Rightarrow TB = 6,10 \times \tan 32^\circ = 3,8$ m (3)

Question 5

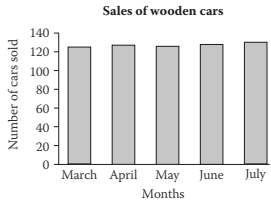
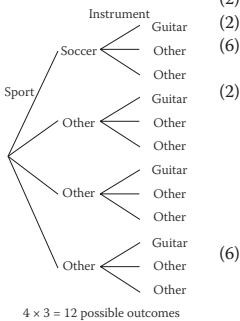
- 5.1 $30 \text{ mm} \times 50 = 1\,500 \text{ mm} = 1,5$ m actual length. (1)
- 5.2 $2 \text{ m} = 2\,000$ mm. Divide by 50: thus 40 mm on the plan. (1)
- 5.3 Estimate: $4\frac{1}{2}$ m by $3\frac{1}{2}$ m (2)
- 5.4 i $4 \text{ mm} \times 50 = 200$ mm
ii 4m by 3m
iii $16 \text{ mm} \times 50 = 800$ mm (3)
- 5.5 i 3,5 m
ii 2,5m (2)
- 5.6 Front view



(6)
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Question 6

- 6.1.1 $P(\text{pen}) = 0,4$ (2 out of 5 possible outcomes) (2)
- 6.1.2 Relative frequency = $0,238764 \approx 0,24$ (85 out of 356 trials) (2)
- 6.1.3 The tree diagram is shown on the right (6)
- 6.1.4 $P(\text{soccer and guitar}) = 0,08333 \approx 0,08$ (1 out of 12 possible outcomes) (2)
- 6.2 The total possible outcomes for card 1: $6 \times 4 = 24$. The probability of scratching the winning combination is 0,04 (1 out of 24 outcomes). The total possible outcomes for card 2: $4 \times 3 \times 3 = 36$. The probability of scratching the winning combination is 0,03 (1 out of 36 outcomes). Therefore with card 2, a customer will have the least chance of winning a dinosaur. (6)
- 6.3.1 Probability of watching demonstration:
- i At shop entrance: $12 \div 55 = 0,218182 \approx 0,22$
 - ii Near the tills: $4 \div 35 = 0,114286 \approx 0,11$
 - iii At games section: $25 \div 53 = 0,471698 \approx 0,47$
 - iv At toy cars section: $32 \div 57 = 0,561404 \approx 0,56$
- 6.3.2 $73 \div 200 = 0,365 \approx 0,37$ (4)
- 6.3.3 Yes, it is correct. The probability values show that the chance of a customer watching a demonstration is much higher at the computer games section and at the toy cars section, than at the entrance or the tills. (1)
- 6.4.1 The y-axis is calibrated from 122 upwards. (3)
- 6.4.2 See graph. (2)



- 6.4.3 The sales are not increasing sharply. They only increased from 125 to 130 cars per month. (2)

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Total: 150