



HIGHER SCHOOL CERTIFICATE EXAMINATION

1995  
**MATHEMATICS IN  
PRACTICE**  
2 UNIT

*Time allowed—Two hours and a half  
(Plus 5 minutes' reading time)*

**DIRECTIONS TO CANDIDATES**

- Board-approved calculators may be used.
- The mark out of 80 will be converted to a mark out of 100.

**Section I** (30 marks)

- This Section contains 30 multiple-choice questions.
- Attempt ALL questions.
- All questions are of equal value.
- Mark your answers in pencil on the Answer Sheet provided.
- Allow about one hour for Section I.

**Section II** (50 marks)

- Attempt ALL questions.
- All questions are of equal value.
- Answer the questions in the spaces provided in this paper.
- Write your Student Number and Centre Number in the spaces provided on the first page of each question.
- Show all necessary working.
- Marks may be deducted for careless or badly arranged work.
- Allow about one hour and a half for Section II.

## SECTION I

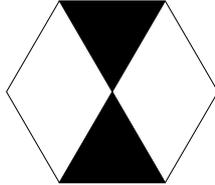
Attempt ALL questions.

All questions are of equal value.

Select the alternative A, B, C, or D that best answers the question.

Mark your answers in pencil on the *separate* Answer Sheet provided.

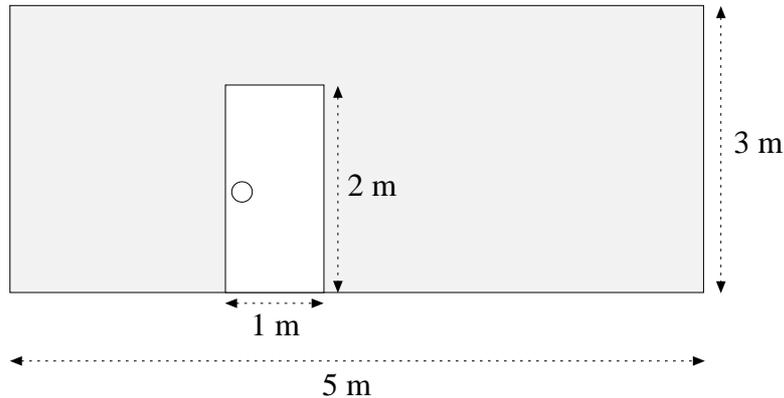
1. The tile below is a regular hexagon and is partially shaded as shown.



What fraction of the tile is shaded?

- (A)  $\frac{1}{4}$                       (B)  $\frac{1}{3}$                       (C)  $\frac{1}{2}$                       (D)  $\frac{2}{3}$

2. Approximately 50 bricks are needed for each square metre of a brick wall.

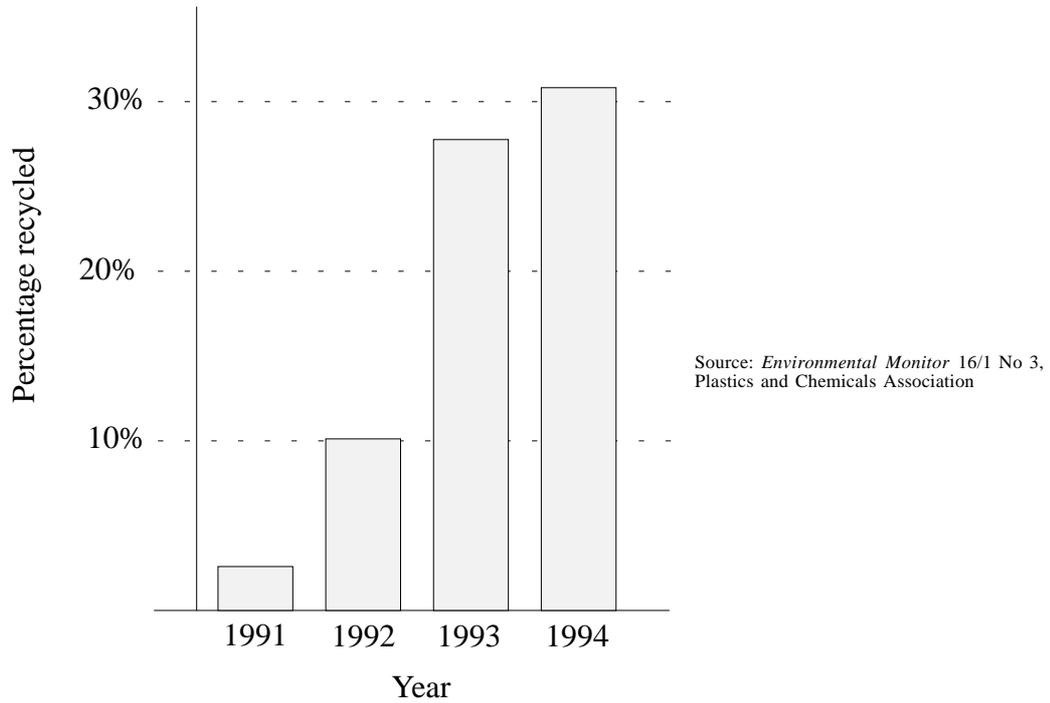


Approximately how many bricks would be needed to build the brick wall above (shown by shading)?

- (A) 260                      (B) 650                      (C) 750                      (D) 6500

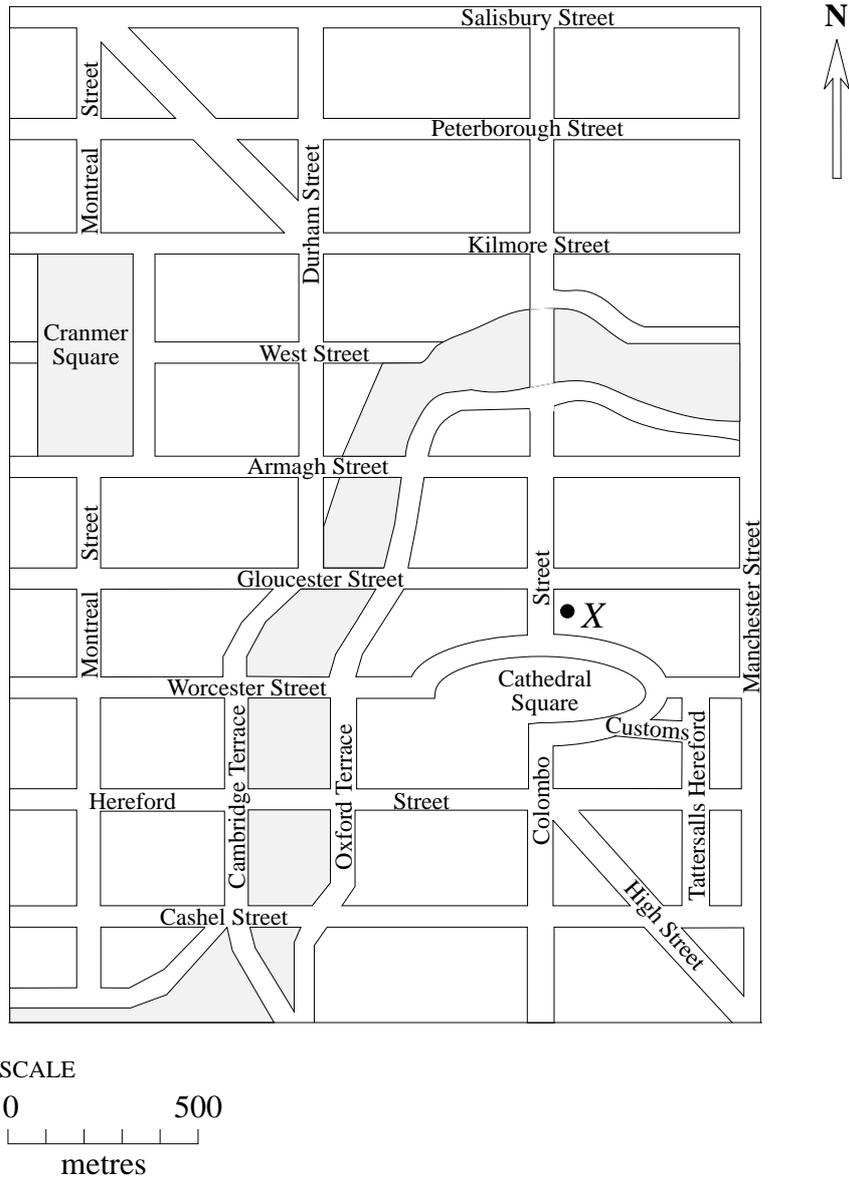
USE THIS GRAPH TO ANSWER QUESTIONS 3 AND 4.

RECYCLING RATE OF PLASTIC MILK BOTTLES IN AUSTRALIA



3. From 1992 to 1994, the recycling rate has approximately
- (A) halved. (B) stayed the same.  
(C) doubled. (D) tripled.
4. In 1994, there were 437 million plastic milk bottles produced.  
How many were recycled?
- (A) 14 million (B) 31 million (C) 135 million (D) 146 million
-

USE THIS MAP TO ANSWER QUESTIONS 5 AND 6.



5. What is the approximate direction of Cranmer Square from Cathedral Square?
- (A) north-east      (B) north-west      (C) south-east      (D) south-west
6. Dennis walks from the position marked X to the intersection of Kilmore and Montreal Streets.
- Which is the best estimate of the distance he walks?
- (A) 1.1 km      (B) 1.6 km      (C) 2.0 km      (D) 2.2 km
-

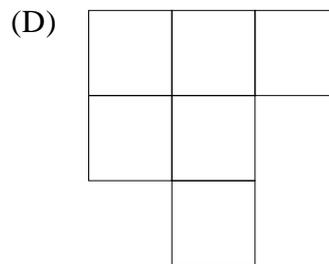
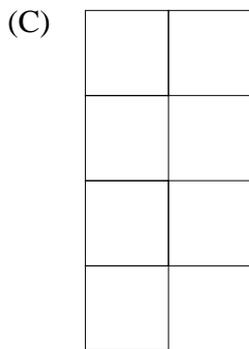
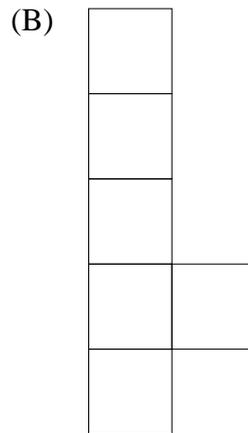
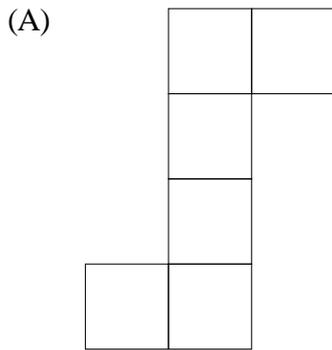
7. On an international flight, you are allowed to take 20 kg of baggage. If you take more, you must pay \$8.30 for each extra kilogram.

When travelling to Estonia, Piret takes 26 kg of baggage.

What will she pay for excess baggage?

- (A) \$0.00                      (B) \$8.30                      (C) \$49.80                      (D) \$215.80
- 

8. Which of these nets could be folded to form a cube?



9. A department store charges 16% per annum interest on all credit-card purchases. How much interest will Sue pay in one month for credit-card purchases of \$1500?
- (A) \$7.81                      (B) \$20                      (C) \$93.75                      (D) \$240
-

10. John is going to make six cushions for the lounge in his new flat. For each cushion, he will need a length of 75 cm of the material that he has chosen. The material costs \$6.75 per metre.

How much will the material cost for the six cushions?

- (A) \$5.06                      (B) \$30.38                      (C) \$40.50                      (D) \$84.38

11. Health Cover offers various levels of private hospital insurance for the following monthly premiums.

	MONTHLY PREMIUMS	
	<i>Couples and families</i>	<i>Singles</i>
Level A	\$105.80	\$52.90
Level B	\$86.70	\$43.35
Level C	\$77.60	\$38.80

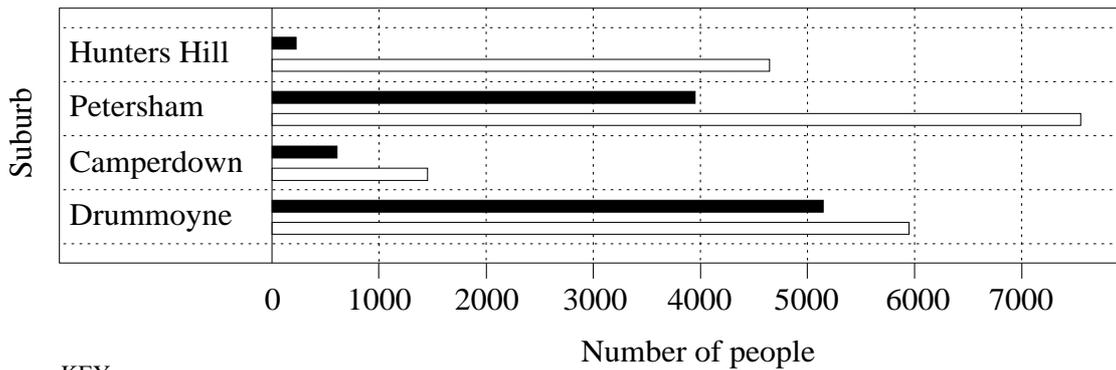
Tom and Gian decide to take out Level B insurance for themselves and their baby son.

What will be their *annual* premium?

- (A) \$86.70                      (B) \$130.05                      (C) \$1040.40                      (D) \$1560.60

12. A third runway was opened at Sydney airport late in 1994. The noise affected many people. The following graph shows the number of people who were affected by aircraft noise in some suburbs both before and after the opening.

UNDER THE FLIGHTPATH—HOW MANY ARE SUFFERING?



KEY

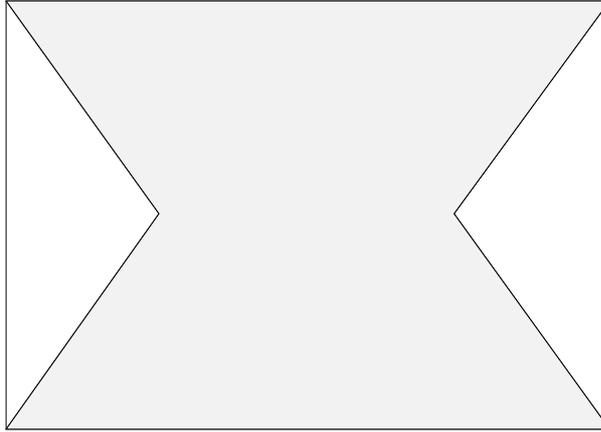
- Before the third runway  
□ After the third runway

Source: Sydney Morning Herald  
9/2/95

Which of these suburbs has shown the greatest increase in the number of people affected?

- (A) Hunters Hill                      (B) Petersham                      (C) Camperdown                      (D) Drummoyne

13.



Estimate the percentage of this flag that is shaded.

- (A) 50%                      (B) 60%                      (C) 75%                      (D) 90%

14. Tara watches television for 30 minutes. During this time there are four advertisement breaks. She records the length of each break in the table below.

<i>Break 1</i>	<i>Break 2</i>	<i>Break 3</i>	<i>Break 4</i>
2 min 30 sec	1 min 45 sec	3 min 15 sec	2 min 45 sec

What percentage of the 30 minutes is taken up by advertisement breaks?

- (A) 9.35%                      (B) 10.15%                      (C) 31.17%                      (D) 34.17%

15. Fertilizer can be bought in either 2.5 kg bags or 10 kg bags.

<b>FERTILIZER</b>
2.5 kg bag: \$3.85
10 kg bag: \$12.95

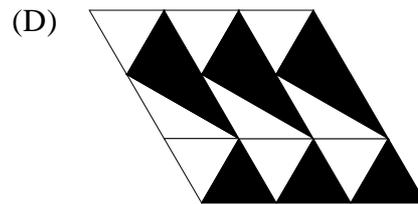
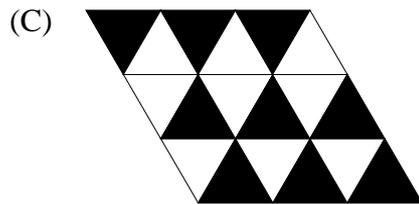
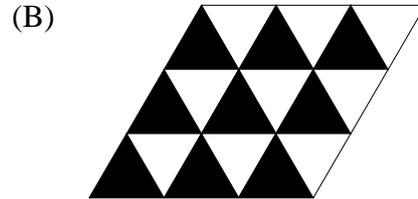
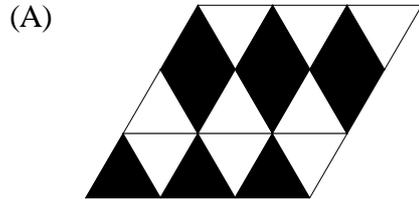
What is the cheapest price that Helga can pay for 25 kg of fertilizer?

- (A) \$32.38                      (B) \$33.60                      (C) \$38.50                      (D) \$38.85

16. A pattern is to be made using nine tiles that are the same as the one shown.



Which of the following patterns *cannot* be made?



17. Two blocks of land have been advertised for sale.

**Land sale!**

640 m<sup>2</sup> block with  
21.5 m frontage

\$140 000

BLOCK 1

**Going cheap!**

Owner selling undeveloped  
block, 1000 m<sup>2</sup>

\$234 000

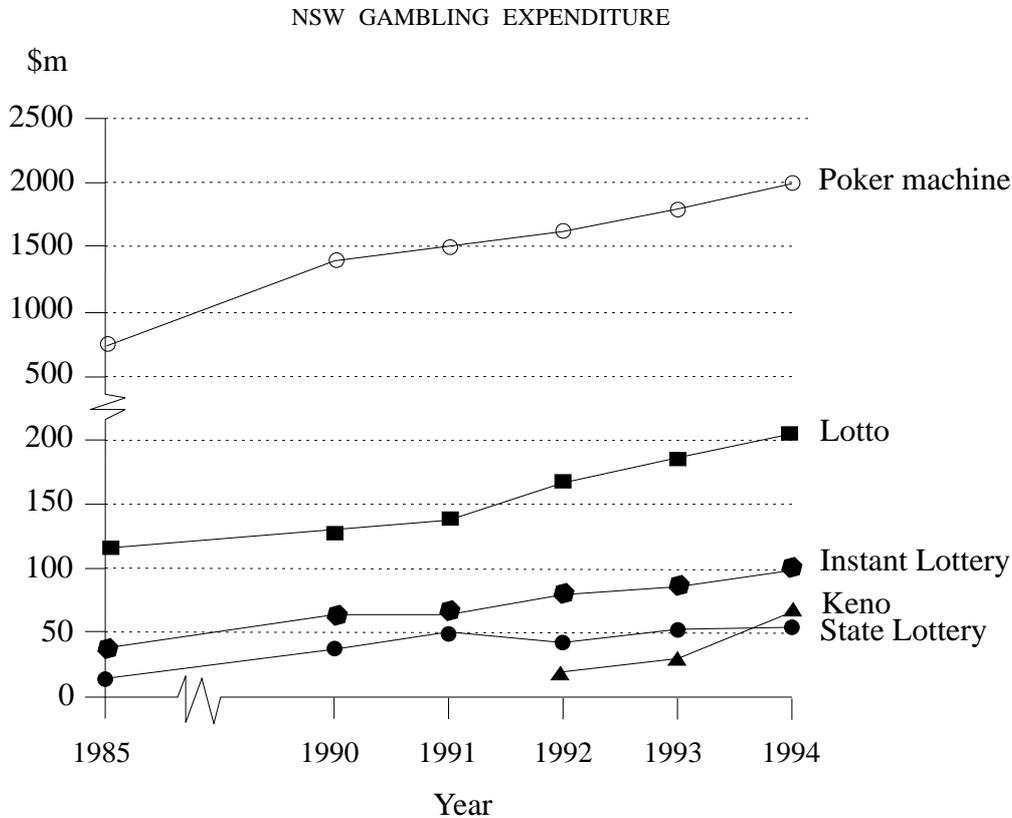
BLOCK 2

What is the difference in price per square metre between these two blocks of land?

- (A) \$15.25      (B) \$94.00      (C) \$146.88      (D) \$261.11

## USE THIS GRAPH TO ANSWER QUESTIONS 18 AND 19

The graph shows the amount of money spent by people in NSW on different forms of gambling in the years up to 1994.



*Sydney Morning Herald 10/2/95, p 4,  
Tasmanian Gaming Commission.*

- 18.** The total spent on these forms of gambling in 1994 in NSW was \$2400 million.  
What percentage of this was spent on poker machines?
- (A) 17%                      (B) 31%                      (C) 75%                      (D) 83%
- 19.** What was the first year in which the amount of money spent on Keno was greater than the amount spent on the State Lottery?
- (A) 1994                      (B) 1993                      (C) 1992                      (D) 1991
-

20. The following advertisement appeared in a catalogue.

**Refrigerator**

**\$1799**

\$200 off with trade-in

Extra \$100 off for cash

You pay cash for this new refrigerator and trade-in your old refrigerator.

What is your saving as a percentage of the full price?

- (A) 6%                      (B) 11%                      (C) 17%                      (D) 20%
- 

21. When it is noon in London, it is 11 p.m. in Sydney on the same day. Ramesh lives in Sydney and wishes to ring his aunt in London.

At what time should Ramesh ring her so that she receives the call at 8:30 p.m. on a Saturday?

- (A) 7:30 a.m. Sunday                      (B) 9:30 a.m. Sunday  
(C) 7:30 a.m. Saturday                      (D) 8:30 p.m. Saturday
- 

22. The cash price of a car is \$15 790. Haruo buys this car on terms of \$5000 deposit and \$72 per week for 5 years.

How much will he pay for the car?

- (A) \$15 790                      (B) \$18 720                      (C) \$22 280                      (D) \$23 720
-

USE THIS TABLE TO ANSWER QUESTIONS 23, 24, AND 25.

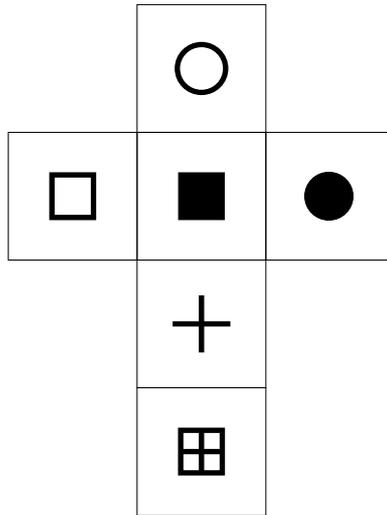
The table is an extract from a flight schedule.

FLIGHT NUMBER JM 535

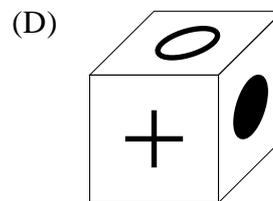
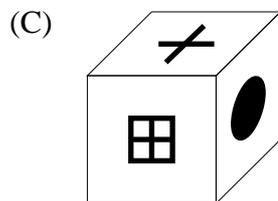
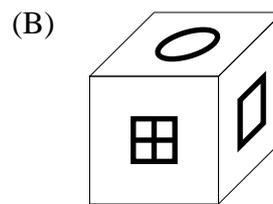
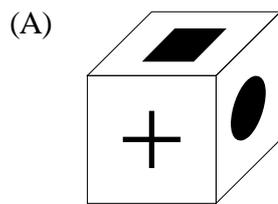
<i>From</i>	<i>To</i>	<i>Depart (local time)</i>	<i>Arrive (local time)</i>	<i>Flight time (hours: minutes)</i>
Sydney	Bombay	15:05	23:00	12:55
Bombay	Frankfurt	2:45	5:40	6:55

- 23.** What is the total flight time from Sydney to Frankfurt on Flight Number JM 535?
- (A) 10 hours 50 minutes                      (B) 14 hours 35 minutes  
(C) 19 hours 10 minutes                      (D) 19 hours 50 minutes
- 24.** How much time is spent on the ground at Bombay when travelling from Sydney to Frankfurt on Flight Number JM 535?
- (A) 3 hours 45 minutes                      (B) 6 hours 55 minutes  
(C) 10 hours 10 minutes                      (D) 20 hours 15 minutes
- 25.** From the table, which of the following statements gives the correct time difference between Bombay and Frankfurt?
- (A) Frankfurt is 4 hours ahead of Bombay.  
(B) Frankfurt is 4 hours behind Bombay.  
(C) Frankfurt is 6 hours ahead of Bombay.  
(D) Frankfurt is 6 hours behind Bombay.
-

26. A cube is to be made from the following net.



Which one of the following cubes cannot be made?



27. An insurance company uses the following formula to calculate the amount of money it will pay for repairs to an insured house.

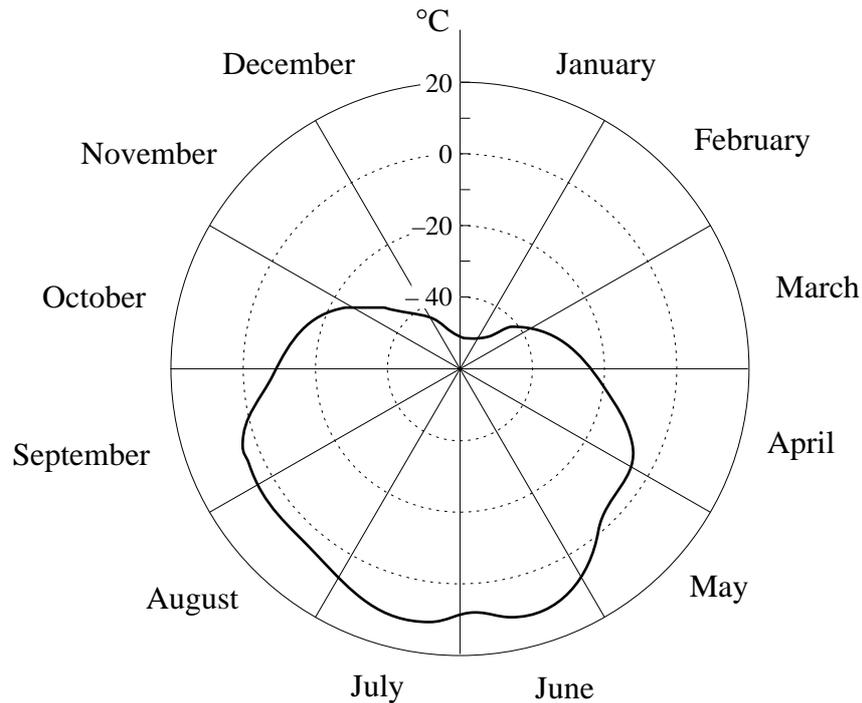
$$\text{Amount paid} = \frac{\text{cost of repairs} \times \text{insured value}}{\text{market price} \times 0.8}$$

Steve's house was severely damaged by fire and the cost of repairs was \$110 000. The insured value of the house was \$150 000 and the market price was \$210 000.

How much did the insurance company pay?

- (A) \$62 857      (B) \$78 571      (C) \$98 214      (D) \$110 000

28. The circular graph shows average temperatures at a particular city.



*Skills in Geography, J Harte, OUP, 1994.*

From this graph, which three-month period has the highest average temperature?

- (A) June, July, August                      (B) November, December, January  
 (C) December, January, February        (D) May, June, July

29. The sign below advertises the exchange rate between Australian and US dollars.

**FOREIGN EXCHANGE**

A\$1 = US\$0.7564

less 1% commission

How much would you get in Australian dollars if you cashed a US\$100 note using this exchange rate?

- (A) \$74.88                      (B) \$75.64                      (C) \$130.88                      (D) \$132.20

30. Below is a table that shows a real-estate agent's fee for selling property.

<i>Value of sale</i>	<i>Agent's fee</i>
Up to and including \$15 000	6%
From \$15 001 to \$60 000	\$900 plus 2% for each \$ over \$15 000
Over \$60 000	\$1800 plus 1% for each \$ over \$60 000

Ann sells her unit for \$125 000.

What is the agent's fee?

- (A) \$1250            (B) \$2450            (C) \$3050            (D) \$7500
-

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**EXAMINER'S USE ONLY**

Q 31

**STUDENT NUMBER**

**1995  
HIGHER SCHOOL CERTIFICATE EXAMINATION  
MATHEMATICS IN PRACTICE  
2 UNIT**

**CENTRE NUMBER**

**SECTION II**

Attempt ALL questions.

All questions are of equal value.

Answer the questions in the spaces provided.

Write your Student Number and Centre Number in the spaces provided.

**QUESTION 31. The Consumer**

(a) Adam and Gina go shopping in a store that is advertising the following:

**SALE**  
20% OFF  
ALL MARKED PRICES

(i) Gina buys a shirt marked at \$75. How much does she pay?

.....  
.....  
.....

(ii) Adam saves \$17.50 on a pair of jeans. What does he pay for the jeans?

.....  
.....  
.....

QUESTION 31. (Continued)

- (b) The following table lists the monthly repayments required for different home loans over certain periods of time.

AMOUNT BORROWED	MONTHLY REPAYMENTS IN DOLLARS		
	<i>Over 15 years</i>	<i>Over 20 years</i>	<i>Over 25 years</i>
\$50 000	568	516	490
\$55 000	625	568	539
\$60 000	682	619	588
\$65 000	739	671	637
\$70 000	796	723	686
\$75 000	852	774	735
\$80 000	909	826	784

Shahida wants a home loan. The most she can afford to pay each month is \$700.

- (i) From the amounts listed in the table, what is the maximum amount Shahida can borrow?

.....

- (ii) Shahida decides to borrow \$50 000. She chooses to repay the loan over 15 years rather than over 25 years.

What is the total amount she will save?

.....

.....

.....

.....

.....

QUESTION 31. (Continued)

- (c) Alex has bought a mobile phone for \$499, and paid an initial connection fee of \$45. He has agreed to pay the following charges:

Monthly access fee	\$35
Cost of a call	29 cents for the first 30 seconds 19 cents for each subsequent 30 seconds

- (i) In the first year, Alex makes calls totalling \$385.

Calculate the total amount spent by Alex in the first year on this mobile phone, including all initial costs.

.....  
 .....

- (ii) What is the cost of a 2-minute call on this mobile phone?

.....  
 .....

- (iii) Alex makes a call that costs \$1.24. How long, in minutes, is Alex's call?

.....  
 .....

- (iv) In March, Alex makes 20 calls at an average cost of \$1.24 per call. How much is Alex's phone bill for March?

.....  
 .....

- (v) Louise also bought a mobile phone. Her fees and call charges are as follows:

Monthly fee	\$50
First 10 calls per month	free
Cost of an average call	87 cents

Louise makes 20 average calls in March.

How much less than Alex does Louise pay for this month?

.....  
 .....

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EXAMINER'S USE ONLY

STUDENT NUMBER

Q 32

**1995  
HIGHER SCHOOL CERTIFICATE EXAMINATION  
MATHEMATICS IN PRACTICE  
2 UNIT—SECTION II**

CENTRE NUMBER

**QUESTION 32. Travel**

(a)

TRAIN TIMETABLE

EMU PLAINS – PENRITH – NORTH SYDNEY  
Mondays to Fridays

Train from:	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	
Blacktown..... ar	.	MVR	.	.	.	SGD	.	.	.	LTH	.	.	.	MVR	
dep	7 36	.	7 43	7 51	7 46	7 55	7 57	8 01	8 06	8 10	8 11	8 13	8 12	8 25	8 28
Seven Hills..... ar	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
dep	.	.	7 46	.	7 49	.	8 01	8 04	.	.	.	8 16	8 16	8 31	.
Toongabbie..... ar	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pendle Hill..... ar	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Westworthville..... ar	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Westmead..... ar	.	.	7 52	.	7 59	8 02	8 07	8 14	.	.	.	8 22	8 26	8 37	8 36
Parramatta..... ar	7 45	7 49	7 54	8 00	8 01	8 04	8 09	8 16	8 15	8 19	8 24	8 28	8 29	8 39	8 38
dep	7 46	7 50	7 55	8 01	8 02	8 05	8 10	8 17	8 16	8 20	8 25	8 29	8 29	8 40	8 39
Harris Park..... ar	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Granville..... ar	.	.	7 58	.	8 06	8 08	8 13	8 21	.	.	8 28	8 33	8 33	8 43	.
Clyde..... ar	.	.	.	.	8 07	.	.	8 22	.	.	.	8 34	8 34	.	.
Auburn..... ar	.	.	.	.	8 10	.	.	8 25	.	.	.	8 37	8 37	.	.
Lidcombe..... ar	.	.	.	.	8 13	8 12X	.	8 28	.	.	.	8 40	.	.	.
Flemington..... ar	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Homebush..... ar	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Strathfield..... ar	.	8 00	8 07	.	8 18	8 22	8 22	8 33	.	8 30	8 37	8 45	8 45	8 52	8 49
dep	.	8 01	8 08	.	8 19	8 23	8 23	8 34	.	8 31	8 38	8 46	8 46	8 53	8 50
Burwood..... ar	.	.	.	.	8 21	.	.	8 36	.	.	.	8 48	.	.	.
Ashfield..... ar	.	.	.	.	.	8 27	.	.	.	.	.	.	.	.	.
Redfern..... ar	8 07	8 11	8 19	8 22	8 31	8 36	8 34	8 46	8 37	8 41	8 49	8 58	8 58	9 04	9 00
Central..... ar	8 09	8 14*	8 21	8 24	8 33	8 38	8 36	8 48	8 39	8 44*	8 51	9 00	9 00	9 06	9 03*
dep	8 10	8 14*	8 22	8 25	8 34	8 39	8 37	8 49	8 40	8 44*	8 52	9 01	9 01	9 07	9 03*
Town Hall..... ar	8 13	.	8 25	8 28	8 37	8 42	8 40	8 52	8 43	.	8 55	9 04	9 04	9 10	.
Wynyard..... ar	8 16	.	8 28	8 31	8 40	8 45	8 43	8 55	8 46	.	8 58	9 07	9 07	9 13	.
Milsons Point..... ar	8 19	.	8 31	8 34	8 43	.	8 46	8 58	8 49	.	9 01	9 10	9 10	9 16	.
North Sydney..... ar	8 21	.	8 33	8 36	8 45	.	8 48	9 00	8 51	.	9 03	9 11	9 11	9 17	.

Shane and Angel are staying at Parramatta. Angel has an appointment at North Sydney on Monday at 9:00 a.m. Use the train timetable above to answer the following questions.

- (i) It will take Angel 10 minutes to walk from North Sydney Station to where she has her appointment. What is the latest possible train she can catch from Parramatta if she is to arrive on time?

.....

- (ii) How long does this trip take from Parramatta Station to North Sydney Station?

.....

- (iii) Shane arranges to meet a friend at Strathfield Station at 9:00 a.m. He catches the train that leaves Parramatta at 8:40 a.m.

After arriving at Stathfield, how much time does he have before 9:00 a.m.?

.....

## QUESTION 32. (Continued)

(b) Blue Water Cruises offers a variety of cruises. They are shown in the table below.

BLUE WATER CRUISES: PRICE PER PERSON (A\$)

<i>Persons in cabin</i>	1A	2A	3A	CHD
<b>Original cruises</b>				
<b>2 days, 1 night</b>				
B deck (lower)	663	389	328	83
A deck (upper)	745	439	367	83
<b>4 days, 3 nights</b>				
B deck (lower)	1034	612	512	172
A deck (upper)	1224	723	601	172
<b>Club cruises</b>				
<b>4 days, 3 nights</b>				
B deck (lower)	1279	756	634	211
A deck (middle)	1468	879	734	211
Bridge deck (top)	1513	923	768	211
<b>7 days, 6 nights</b>				
B deck (lower)	2280	1368	1146	345
A deck (middle)	2670	1580	1313	345
Bridge deck (top)	2781	1646	1368	345
<b>Return transfers</b>	34	34	34	16
A = adult				
CHD = 1 child 2–15 years sharing with 2 adults				
<b>Cancellation policy</b> (full refund on transfers)				
The following cancellation fees apply:				
30–44 days before sailing	\$50 per person			
14–29 days before sailing	50% of applicable cruise fare			
Within 14 days	100% of applicable cruise fare.			

QUESTION 32. (Continued)

Aileen and David decide to go on a Club Cruise for 7 days and stay in a cabin on A deck.

Refer to the table opposite to answer the following questions.

- (i) Including transfers, how much will the cruise cost for both of them?

.....  
.....

- (ii) They decide to take Aileen’s 10-year-old sister with them.

Including transfers, how much *extra* will this cost?

.....

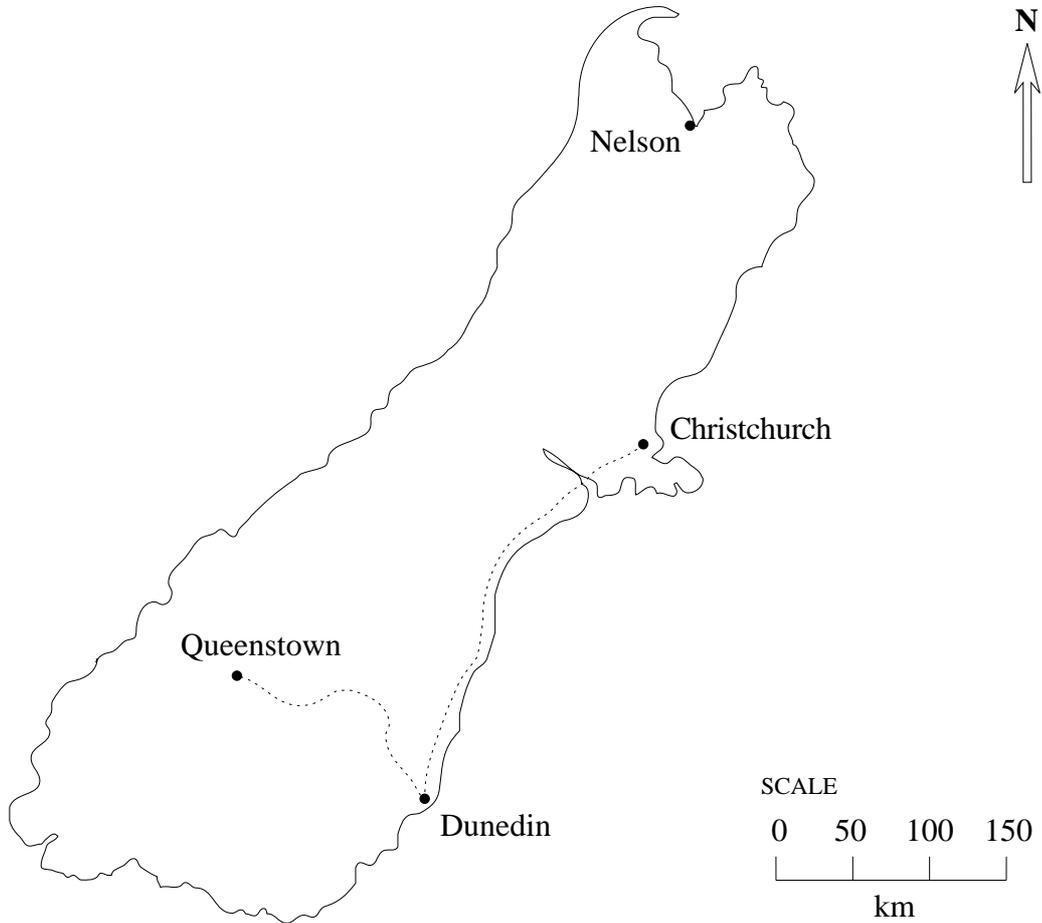
- (iii) Unfortunately, they all have to cancel the cruise 15 days before sailing.

What is the value of the refund due to them from Blue Water Cruises?

.....  
.....

QUESTION 32. (Continued)

(c) Below is a map of the South Island of New Zealand.



(i) Use the scale to estimate the distance between Queenstown and Christchurch when travelling on the road shown.

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(ii) Rangi travels by car from Christchurch to Nelson. The distance is 360 km. The trip takes 7.5 hours.

Calculate the average speed for this trip. (Speed = distance ÷ time.)

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(iii) Rangi's car uses 8.2 L of petrol for every 100 km travelled. How much petrol will his car use for the trip between Christchurch and Nelson?

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**QUESTION 33. Accommodation**

(a) The table shows the prices of four houses in Sydney suburbs.

<i>Suburb</i>	<i>House price at the beginning of 1993</i>	<i>Percentage increase in price during 1993</i>	<i>House price at the end of 1993</i>
Avalon	\$306 000	11%	\$339 660
Brookvale	\$248 500		\$283 290
Clovelly	\$299 000	13%	\$337 870
Dolls Point	\$250 000	12%	\$280 000

- (i) Complete the table above for Brookvale.
- (ii) Each house was purchased at the beginning of 1993 and sold at the end of the year.

By calculating the value of the profit for each house, find the greatest profit.

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- (iii) The price of the house at Dolls Point increased by 11% during 1994.  
What is the increase in the value of this house from the beginning of 1993 until the end of 1994?

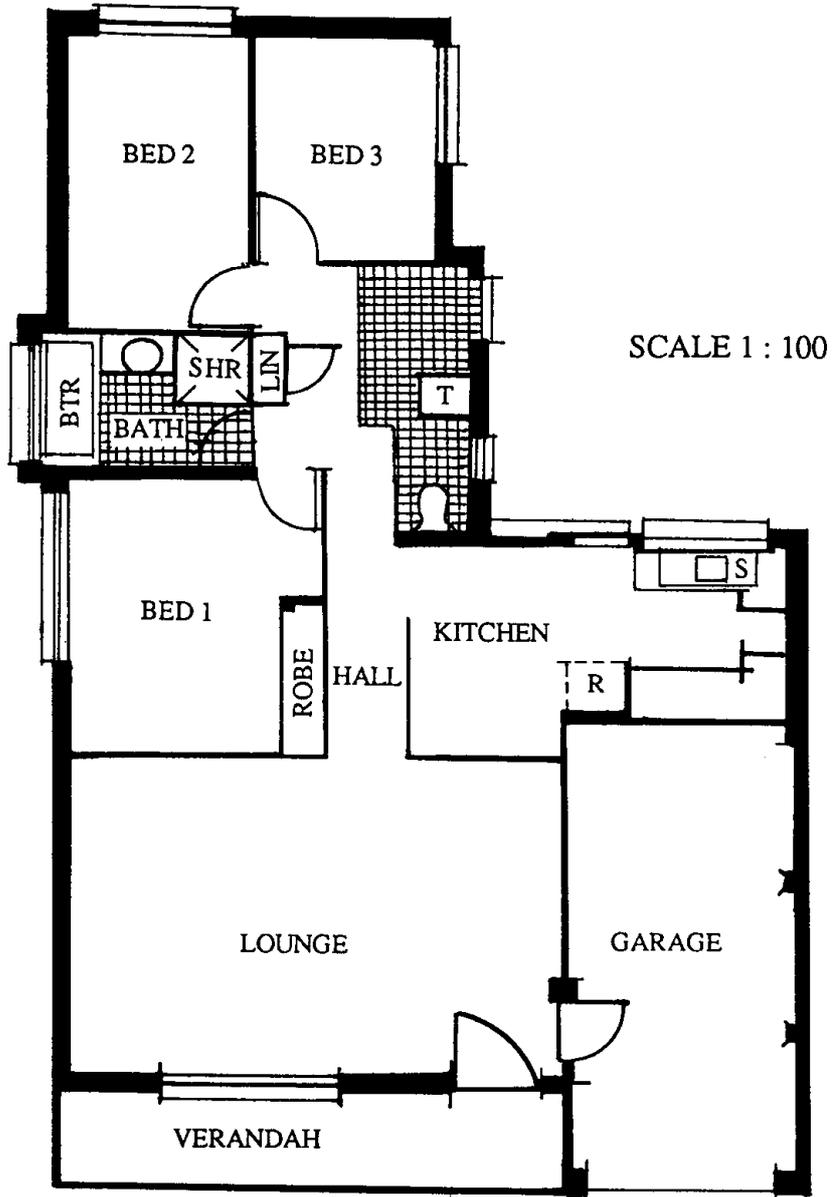
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QUESTION 33. (Continued)

(b) This is the floor plan of Lyn's house.



QUESTION 33. (Continued)

- (i) Find the actual length of the verandah.

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- (ii) Find the total cost of tiling the verandah at \$35 per square metre.

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- (iii) In Lyn’s house there is carpet in the bedrooms, hall, and lounge-room. She wants to get the carpet cleaned.

The following advertisements for carpet cleaning were in the local paper.

A—Fresh Cleaning Service		B—Clean Carpet Steaming	
1 bedroom, lounge, and hall	\$35	lounge and hall	\$28
2 bedrooms, lounge, and hall	\$45	extra rooms	\$7 each
Then, \$9 per room			

1. From the floor plan, calculate the cost of cleaning the carpet if she uses A—Fresh Cleaning Service.

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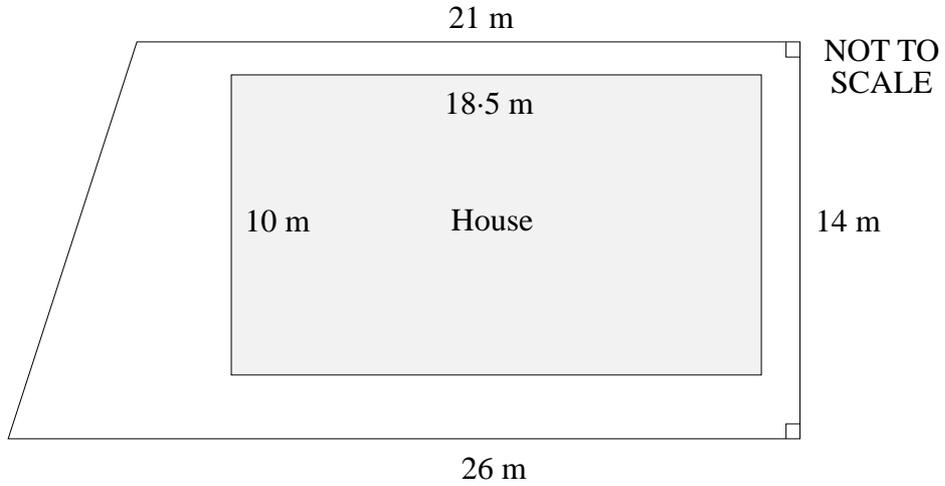
2. How much would Lyn save if she chose B—Clean Carpet Steaming?

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QUESTION 33. (Continued)

(c) The diagram shows a plan of a block of land with a rectangular house on it.

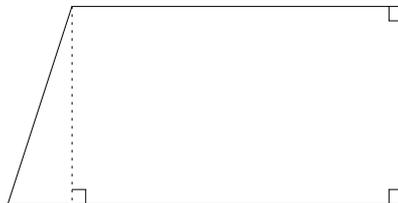


(i) Calculate the area of the house.

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(ii) Calculate the total area of the block of land. (You can divide the block of land into a rectangle and a triangle as shown.)



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(iii) Laura has submitted these plans to the local council for permission to build. The local council has a building regulation that states that the area of the house must occupy 60% or less of the area of the block of land.

Will this house satisfy this regulation? Explain your answer.

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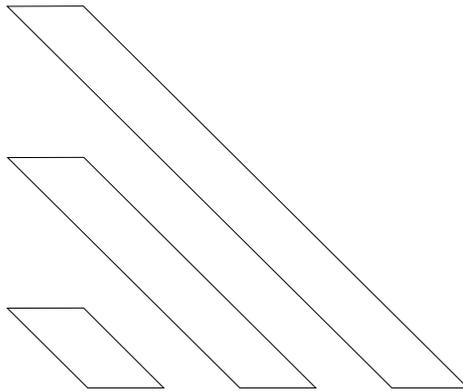
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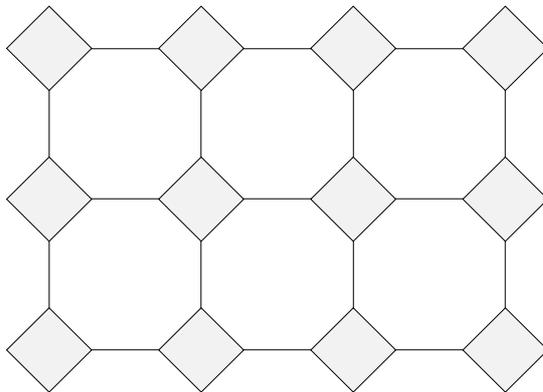
**QUESTION 34. Design**

(a)



Continue the pattern by carefully drawing in the next parallelogram in the sequence.

(b)



Which two geometrical shapes make up the tiling pattern above?

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## QUESTION 34. (Continued)

(c)



This flag is to have two more dark horizontal stripes drawn. Each dark stripe has the same width as the one shown. The spaces between the dark stripes, and the spaces at the top and the bottom of the flag, are all the same.

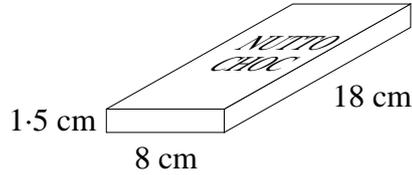
Complete the flag, shading the two additional dark stripes.

(d) A rectangular poster is to be made to advertise a school disco. It is to be 1.6 m long and 1 m wide.

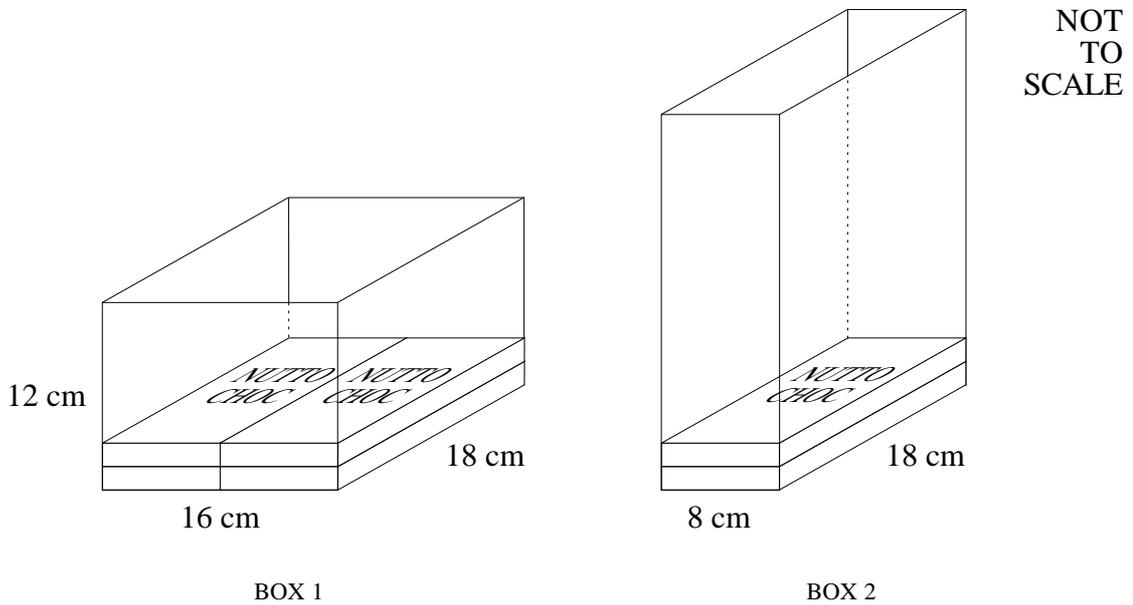
Draw a scale drawing of the rectangle using the scale 1 : 20.

QUESTION 34. (Continued)

- (e) The ‘Nutto Choc’ chocolate block is in the shape of a rectangular prism. The dimensions of the chocolate block are shown in the diagram below.



These chocolate blocks can be packed in Box 1 or Box 2. The same number of blocks fit in each box. Both boxes are made of cardboard and are open at the top.



- (i) How many of these chocolate blocks would fit in Box 1?

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- (ii) What is the surface area of the outside of Box 1?

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- (iii) What is the height of Box 2?

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**QUESTION 35. Social Issues**

- (a) In a weather report, the words ‘moderate breeze’ indicate that wind speed will be in the range 11 to 16 knots. The chart shows the speeds for each type of wind.

<i>Scale number</i>	<i>Description</i>	<i>Wind speed (knots)</i>
0	calm	<1
1	light air	1–3
2	slight breeze	4–6
3	gentle breeze	7–10
4	moderate breeze	11–16
5	fresh breeze	17–21
6	strong breeze	22–27
7	near gale	28–33
8	gale	34–40
9	strong gale	41–47
10	storm	48–55
11	violent storm	56–63
12	hurricane	≥64

- (i) What is the description of a wind of speed 30 knots?

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- (ii) A speed of 1 knot is equal to 1.85 kilometres per hour. Express in kilometres per hour the lowest wind speed for a hurricane.

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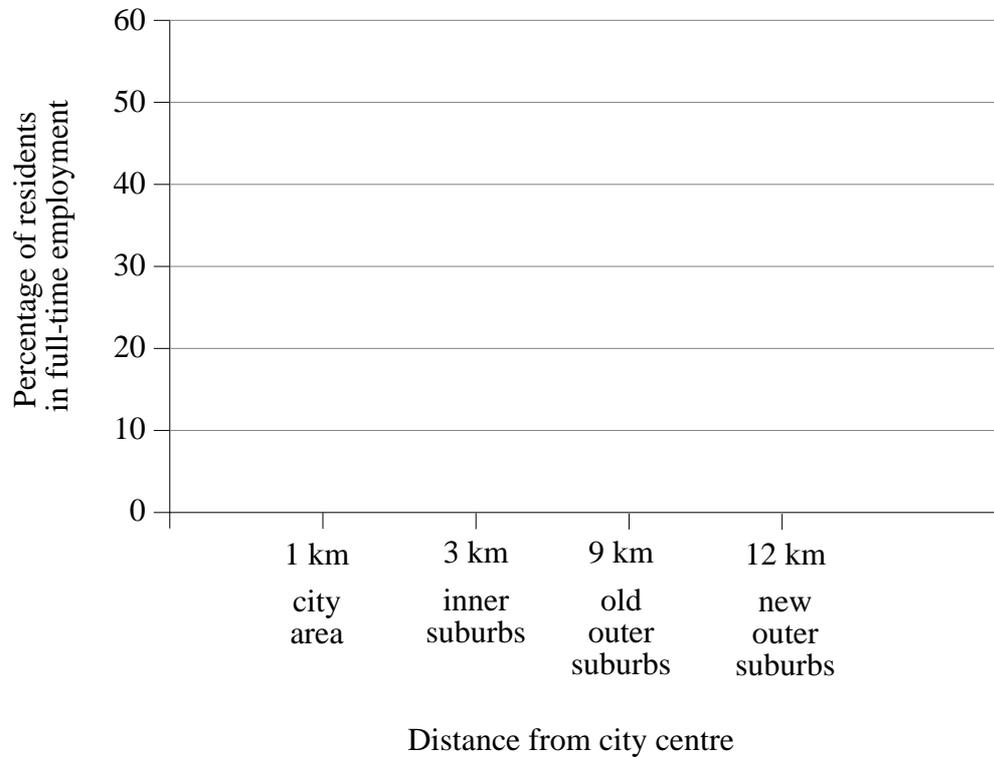
## QUESTION 35. (Continued)

(b) The table below refers to an Australian city.

DISTANCE FROM CITY CENTRE	PERCENTAGE OF RESIDENTS	
	<i>Full-time students</i>	<i>Full-time employment</i>
1 km (city area)	17	59
3 km (inner suburbs)	16	43
9 km (old outer suburbs)	17	40
12 km (new outer suburbs)	30	33

- (i) In the city area, what percentage of residents are either full-time students or in full-time employment?
- .....

- (ii) Use the axes below to construct a column graph showing the percentage of residents in full-time employment.



QUESTION 35. (Continued)

(iii) Describe the trend shown in your column graph.

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(c) The primary votes in an election for a union official are shown as follows.

<i>Candidate</i>	<i>Number of votes</i>
Clarke	175
Fraser	224
Arnold	121
TOTAL	520

Arnold's preferences are to be distributed. Only 30 of these preferences go to Fraser. All other preferences go to Clarke.

Who wins the election? Explain your answer.

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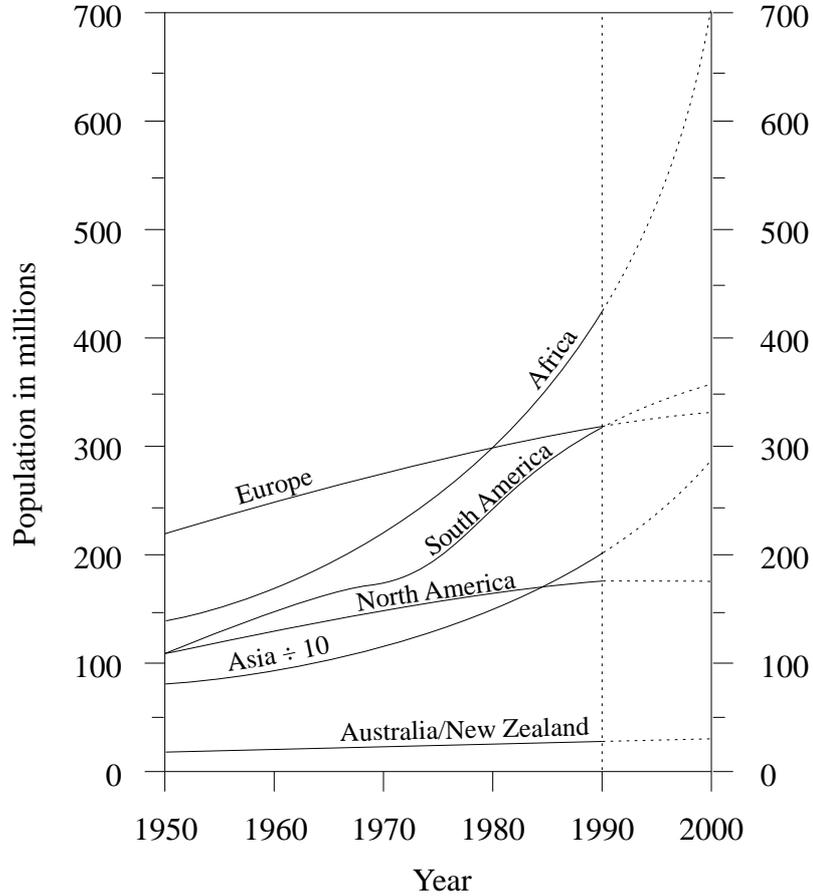
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QUESTION 35. (Continued)

- (d) The graph shows the population of each continent between 1950 and 1990, and the predicted population for the 10 years after 1990. Note that the population of Asia has been divided by 10.



*Settlement Patterns and Processes, Harris and Stephens, Longman Australia, p 266*

- (i) Which continent has shown the least change in population between 1950 and 1990?

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- (ii) According to the graph, what will be the population of Asia in the year 2000?

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- (iii) Calculate the annual percentage increase of the population of South America in the period 1950 to 1990. Use the following formula:

$$\text{Annual percentage increase} = \frac{\text{actual increase 1950 to 1990}}{\text{population in 1950}} \times \frac{100}{40}.$$

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