



BOARD OF STUDIES
NEW SOUTH WALES

**1999
SCHOOL
CERTIFICATE
TEST**

9 November

MATHEMATICS

**SECTION 2
Part B**

CENTRE NUMBER

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STUDENT NUMBER

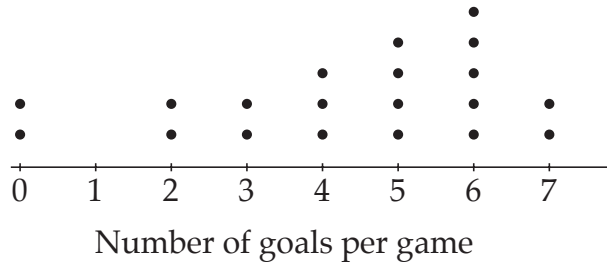
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Directions for Section 2—Part B

- Part B Questions 76–80 (25 marks)
 - Allow about 30 minutes to answer this part
- Calculators may be used in Section 2
- Complete your answers to Questions 76–80 in this booklet
- Do NOT write in pencil
- Write your Centre Number and Student Number at the top of this page

Question 76 (5 marks)

The dot plot shows the number of goals per game scored by Stephen's team during a soccer competition.



- (a) How many games did Stephen's team play?

- (b) What was the median number of goals scored per game?

- (c) What was the average number of goals scored per game, to one decimal place?

- (d) In what percentage of games did Stephen's team score 6 or more goals?

- (e) A sector graph is to be drawn to represent the above information.
 What angle at the centre of the graph would represent the number of times exactly 5 goals were scored?

Question 77 (5 marks)

A small car uses 30 litres of petrol to travel 465 km.

- (a) At this rate, what is the maximum distance the car can travel using 60 litres of petrol?

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- (b) What is the average distance travelled per litre of petrol?

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- (c) Find the number of litres used to travel 100 km, correct to one decimal place.

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- (d) Petrol costs 69.9 cents per litre.

Find the cost of the petrol needed to travel 100 km. Give your answer to the nearest cent.

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- (e) A larger car uses 30 litres to travel 305 km.

At this rate, how far can it travel on a full tank if the tank holds 72 litres?

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Question 78 (5 marks)

The information below is from a label on a package of noodles.

NUTRITION INFORMATION

Servings per package: 25		
Serving size: 12 g		
	Per serving (12 g)	Per 100 g
Energy	55 calories	457 calories
Protein	1.0 g	8.8 g
Fat	2.4 g	20 g
Carbohydrates		
Total	7.5 g	62 g
Sugars	0.8 g	6.4 g
Sodium	171 mg	1430 mg
Potassium	—	—

- (a) How many grams are there in one serving of noodles?

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- (b) What is the percentage of *fat* in the noodles?

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- (c) What is the total number of grams of *fat* in the package?

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- (d) James uses 10 calories per minute when he is jogging.

How many minutes would James need to jog to use the calories from a single serving of noodles?

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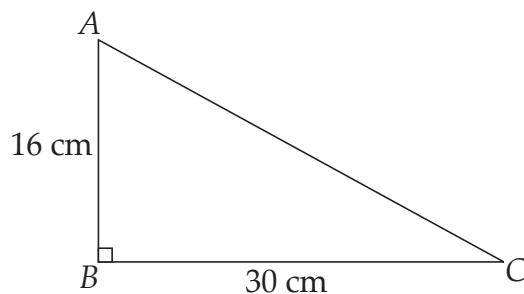
- (e) The average *daily requirement* of sodium is 230 milligrams per day.

How many grams of noodles would need to be eaten for this *daily requirement*? Give your answer to the nearest gram.

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Question 79 (5 marks)

In $\triangle ABC$, $AB = 16$ cm, $BC = 30$ cm and $\angle ABC = 90^\circ$.



- (a) Write your answer A, B, C or D to the following in the space provided.

The triangle is

- (A) right-angled and isosceles.
- (B) acute-angled and scalene.
- (C) right-angled and scalene.
- (D) acute-angled and isosceles.

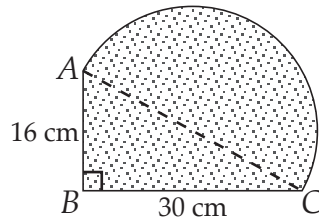
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- (b) Show that the length of AC is 34 cm.

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Question 79 (Continued)

(c) A semicircle with diameter AC is drawn on triangle ABC .



(i) Write your answer A, B, C or D to the following in the space provided.

The area of the semicircle to the nearest square centimetre is

- (A) 454
- (B) 908
- (C) 1816
- (D) 3236

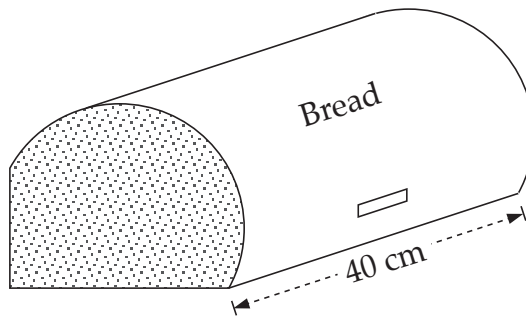
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(ii) Find the shaded area.

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(d) The shaded area in part (c) represents one end of a bread container.

The length of the container is 40 cm.

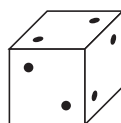


Calculate the volume of the container. Give your answer to the nearest cubic centimetre.

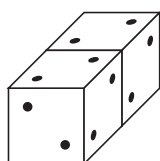
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Question 80 (5 marks)

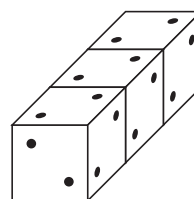
If we place two dots on each face of a cube, there will be 12 dots on the outer surface.



If two cubes are joined as shown, the number of dots on the outer surface will be 20.



Three cubes joined in the same way will give 28 dots.



- (a) Four cubes are joined in the same way.

How many dots will there be on the outer surface?

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- (b) Find the total number of dots on the outer surface of seven cubes joined in the same way.

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- (c) How many dots will there be on the outer surface of n cubes joined in the same way?

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- (d) How many cubes, joined in the same way, are needed if there are to be 236 dots on the outer surface?

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End of test

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