2001 SCHOOL CERTIFICATE TEST

SAMPLE PAPER

MATHEMATICS SECTION 2 PART B

QUESTION/ ANSWER BOOKLET

Directions to students

1. You are allowed 90 minutes to answer **ALL** of Section 2.

2. Section 2 has **TWO** parts.
   Part A: Questions 26-75   (50 marks)
   Part B: Questions 76-80   (25 marks)

3. Attempt **ALL** questions in Section 2.

4. Calculators **MAY** be used in Section 2.

5. The Sample Questions and Formulae Booklet may be used in Section 2.

6. Complete your answers to Section 2 Part B in **THIS** booklet.

7. Do **NOT** write in pencil.

8. Write your Student Number below.

Questions 76 to 80 are worth 1 mark each. Each question MAY have MORE THAN ONE correct answer. Fill in the response circles completely.

Question 76
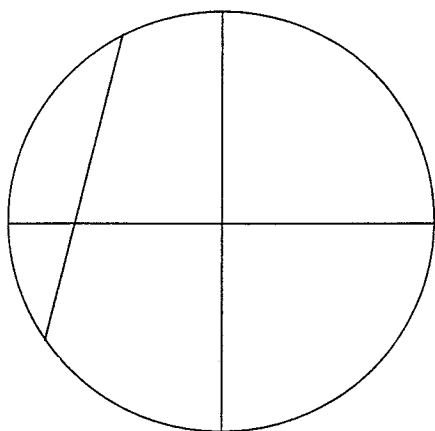
The circle above has 2 diameters at rightangles drawn in it and a chord. Which of the following statements are true?

    (A)   There is a sector and an arc shown but not a tangent

    (B)   There is a semi-cicle and a tangent shown but not a radius

    (C)   There is a sector and a semi-circle and a segment shown

    (D)   There is a radius and a sector and an angle at the circumference shown

    (A)   ◯   (B)   ◯   (C)   ◯   (D)   ◯

Question 77
Half a number is squared and added to 7. If the number is n this could be written as:

    (A) $7 + \frac{1}{2} n^2$

    (B) $7 + (\frac{1}{2} n)^2$

    (C) $\frac{n^2}{2} + 7$

    (D) $\frac{1}{\frac{1}{2} n^2} + 7$

    (A)   ◯   (B)   ◯   (C)   ◯   (D)   ◯

Question 78

Tamsin and Nicholas are planting their orchard. They have 144 trees to plant. There are 50 apple trees, 25 orange trees, 20 mandarin trees, 12 peach trees and 10 apricot trees. A tree is drawn at random for planting.

Which of the following statements could possibly be true?

(A)   The probability of choosing a plum tree equals the probability of choosing an apple

(B)   The probability of choosing a lemon tree equals the probability of choosing a mandarin

(C)   The probability of choosing an apricot tree is less than the probability of choosing a plum tree

(D)   The probability of choosing an lemon tree is $\dfrac{5}{36}$

(A) ○   (B) ○   (C) ○   (D) ○

Question 79

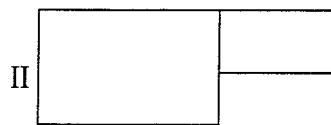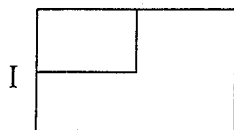A number squared is given as the number minus 2 times the number plus 2 plus 4.

$$n^2 = (n-1)(n+1) + 4$$

The number could be:

(A)   8 or -8 (B)   8 but not -8

(C)   15 or -15 (D)   15 but not -15

(A) ○   (B) ○   (C) ○   (D) ○

Question 80

The solid shown below has been turned and viewed from different sides? Which of the following statements is true.
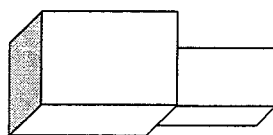
(A)   I and II   (B)   II and III

(C)   I but not II   (D)   II but not III

(A) ○   (B) ○   (C) ○   (D) ○

Question 81 (5 marks)

Marco plans to paint his room. It is 300cm wide by 360cm long. The walls are 240cm high. There is a window 180cm wide and 180cm high. The door will be the same colour as the walls and the ceiling will be white.

(a)   What is the wall area to be painted (in m^2 to 2 places of decimals)?

_____

_____

_____

(b)   He buys paint where the instructions say 1 litre covers 16 square metres. How many litres will he need?

_____

_____

_____

(c)   Paint is sold in 1 litre, 2 litre and 4 litre cans. 1 litre costs $19.50, 2 litres cost $36.50 and 4 litres cost $60. Which is the most economical way to buy paint?
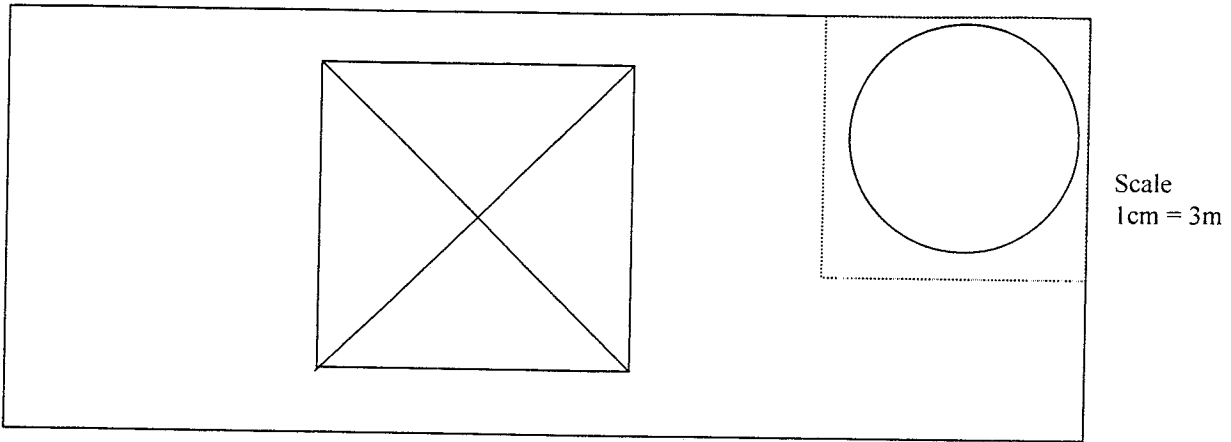
_____

_____

_____

(d)   Using the prices in (c) which is the best way for Marco to buy paint?

_____

_____

_____

Question 82 (5 marks)

Scale
1cm = 3m

The plan above shows the Jones' block of land with their house and a circular pool in the back yard. A safety fence is to be built where the dotted line is. The other 2 sides of the pool are already fenced.

(a)   What percentage of the block is covered by the house (nearest whole number)?

_____

_____

_____

(b)   What is the area of the ground covered by the pool (nearest m^2)?

_____

_____

(c)   The pool safety fence needs to be built. What will be the cost of the fence at $85.50 per metre?

_____

_____

(d)   When the fence is built water can be put in the pool. If the pool is averages 1.5m deep how many litres will there be (1 litre = $1000cm^3$)?

_____

_____

_____

Question 83 (5 marks)

Hilltop High School plan a Year 10 picnic day. They calculate the costs. The Palatial Park Picnic Area costs $185 to hire for the day. They will need to hire buses to get them there. Each bus costs $450 for the day and carry 53 people each. There are 160 students and 8 teachers going. A caterer is supplying a barbecue lunch at $5 each.

(a)   How many buses will be needed?

_____

_____

(b)   Find the total cost for the day.

_____

_____

(c)   If teachers pay for their own lunches how much will the day cost each student?
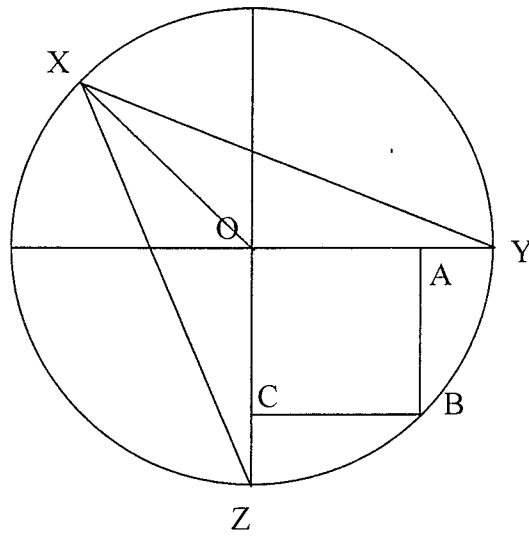
_____

_____

(d)   If 10 students are away on the day and costs are adjusted how much will the day cost each student?

_____

_____

Trial School Certificate

Question 84 (5 marks)

Below is a circle with radius 8cm.

NOT TO
SCALE

(a)   ABCO is a square. Calculate the size of AB to 1 decimal place.

(b)   If XY = XZ prove that ∆s XYO and XZO are congruent.

(c)   Calculate the size of ∠ZXY

End of Test

MATHEMATICS FORMULAE

Circumference of a circle   = π x diameter

$$[C = \pi d]$$

Area of a circle   = π x radius squared

$$[A = \pi r^2]$$

Area of a parallelogram   = base x perpendicular height

$$[A = bh]$$

Area of a rhombus   = half the product of the diagonals

$$[A = \tfrac{1}{2} xy]$$

Area of a trapezium   = half the sum of the parallel sides x perpendicular height

$$[A = (\tfrac{a+b}{2})h]$$

Volume of a prism   = area of a cross section x height

$$[V = Ah]$$

Volume of a cylinder   = π x radius squared x height

$$[V = \pi r^2 h]$$

Pythagoras' theorem states :
In a right-angled triangle,
The hypotenuse squared   = the sum of the squares on the other two sides

$$[c^2 = a^2 + b^2]$$