

170 copies

HARRISON COLLEGE
FIRST FORM MATHEMATICS
INTERNAL PROMOTION EXAMINATION 2013 - 2014



DURATION: 1 hour and 20 minutes

GENERAL INSTRUCTIONS TO CANDIDATES:

- 1) This question paper consists of TWO printed pages.
- 2) Write your name clearly on **EACH** sheet of paper used.
- 3) All **13** questions are to be attempted.
- 4) Number your responses carefully and **identically** (including any associated parts) as they appear on the question paper.
Do **NOT** write ANY of your responses beside each other.
- 5) Calculators are NOT allowed.
- 6) The maximum mark for this examination is 75.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

Write on your foolscap the LETTER that matches your response for Questions 1 – 5.

1. Which of the following is an irrational number?
 A. -5 B. $\sqrt{9}$ C. $\sqrt{5}$ D. 0
2. The number 2731 rounded to 2 significant figures is
 A. 2700 B. 270 C. 27 D. 2.7
3. The number 2 (base 10) is equivalent to
 A. 2_2 B. 1_2 C. 10_2 D. 100_2
4. 3 more than 2 times a number x can be written as
 A. $2(x + 3)$ B. $2x + 3$ C. $3x + 2$ D. $3 - 2x$
5. The area of a triangle is 28 cm^2 . The height of the triangle is 7 cm, what is the length of the base of the triangle?
 A. 4 cm B. 6 cm C. 8 cm D. 10 cm [5]
6. Calculate the value of each of the following.

| | | | |
|--|-----|------------------------|-----|
| a) $5 \times (3 + 4) - 9$ | [3] | e) $-21 - (-27) =$ | [3] |
| b) $2\frac{1}{2} + \frac{3}{4} \div \frac{1}{2}$ | [3] | f) $2 \times (-7) =$ | [2] |
| c) $-4 - 12 =$ | [2] | g) $-225 \div (-15) =$ | [2] |
| d) $-32 + 15 =$ | [2] | | |
7. (a) Corey bought 120 T - shirts for \$1 800.
 (i) Determine the cost of 1 T - shirt. [2]
 He then sells ALL of the T - shirts and makes a 30% profit.
 (ii) Determine the TOTAL selling price of the T - shirts. [3]
 (b) In selling his Samsung Galaxy S5 for \$2 000 Jermaine makes a 25% profit.
 (i) Determine the cost price of the Samsung Galaxy S5. [3]
8. Given that A and B are subsets of U and
 $U = \{\text{Natural numbers less than 11}\}$
 $A = \{\text{Prime numbers}\}$
 $B = \{\text{Even numbers}\}$
 (i) Draw a Venn diagram to represent this information. [4]
 (ii) List the members of the set
 a) $A \cup B'$ [2] b) $(A \cup B)'$ [2]
9. Given that $a = 3, b = -1$ and $c = 2$, determine the value of
 a) $4a - 3b$ [3] b) $a^2 - c^2$ [3]
10. Simplify each of the following.
 a) $2x + 7x =$ [1] c) $6a + 4b - 2a + 9b =$ [2]
 b) $-3a - 17a =$ [2] d) $2x \times 3c =$ [2]

11. Solve each of the following equations. Show ALL working.

a) $3x = 36$

[2]

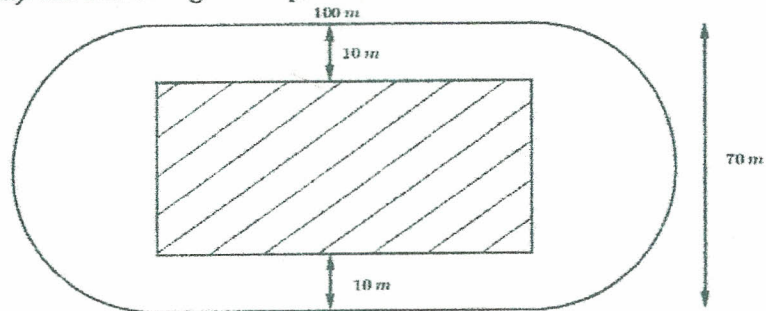
b) $5 - h = 7$

[3]

c) $4a + 1 = 3a - 9$

[4]

12. The diagram, not drawn to scale, shows a stadium. Within the stadium, which comprises a rectangle and two semi-circular arcs, there is a rectangular green football field (indicated by the shaded region). The remaining area is painted red.



Determine

(i) the perimeter of the stadium,

[4]

(ii) the area of the football field,

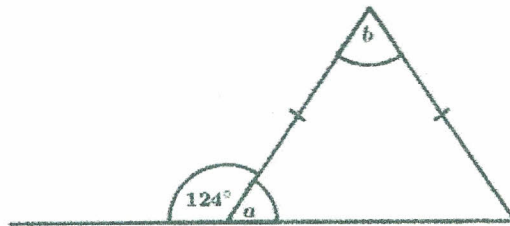
[3]

(iii) the area of the stadium which is painted red.

[4]

NB: Use $\pi = \frac{22}{7}$

13. In the diagram below, not drawn to scale, state the size of the indicated angles, giving a reason for each answer.



[4]

END OF EXAMINATION