Class	Register Number	Name

CHIJ SECONDARY (TOA PAYOH)
MID YEAR EXAMINATION 2008
SECONDARY 1 (EXPRESS)

MATHEMATICS

Paper 1   5 May 2008

Candidates answer on the Question Paper.   **1 hour**

READ THESE INSTRUCTIONS FIRST

Write your class, register number and name on all the work you hand in.
Write in dark blue or black pen in the spaces provided on the Question Paper.
You may use a soft pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.
The number of marks is given in brackets [ ] at the end of each question or part question.
Show all your working in the space below the question.
Omission of essential working will result in loss of marks.

The total marks for this paper is 50.

You are expected to use an electronic calculator to evaluate numerical expressions.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the
answer to **three** significant figures. Give answers in degrees to **one** decimal place.

	FOR EXAMINER'S USE
PAPER 1	
TOTAL	50

This document consists of __8__ printed pages including the cover page.

[Turn over

PAPER 1 [50 marks]

Answer ALL the questions. All working must be clearly shown in the space provided.

1. Complete the statements in the answer spaces.

   (a) 0.04375 correct to 2 significant figures is _____. [1]

   (b) 0.04375 as a fraction in its lowest terms is _____. [1]

   (c) 0.04375 correct to the nearest thousandth is _____. [1]

   (d) 2165.89 m rounded off to the nearest 10 m is _____. [1]

2. (a) Arrange −1, 5, −13, 29, 0 in ascending order.

   (a) _____ [1]

   (b) Find the decimal number exactly halfway between 1.01 and 1.02.

   (b) _____ [1]

   (c) Find the fraction exactly halfway between $\dfrac{3}{7}$ and $\dfrac{6}{7}$.

   (c) _____ [1]

3. Without using a calculator and showing your working clearly, evaluate

   $$-24 \div -10 + [-36 - 100 \div (-5)] \div 8$$

   _____ [2]

4. (a) Express 2025 as a product of its prime factors.

(a) _____ [2]

(b) Hence evaluate $\sqrt{2025}$.

(b) _____ [1]

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5. (a) Find the HCF of 90, 126 and 198.

(a) _____ [2]

(b) Find the LCM of $2^3 \times 3^2 \times 5 \times 7$, $2^2 \times 3^3 \times 5^2 \times 11$ and $2^2 \times 3 \times 5 \times 11$, leaving your answer in index notation.

(b) _____ [2]

6. Estimate the value of the following, correct to **one** significant figure.

(a) $\dfrac{2198}{10.9 \times 8.059}$

(a) _____ [1]

(b) $\dfrac{0.812^2 + 0.159}{\sqrt{28.32}}$

(b) _____ [1]

7. The temperature at sea level is 12°C.

The temperature at a height of 6000 m above sea is $-8\,°C$.

(a) Calculate the difference between these temperatures.

(a) _____ [1]

(b) If the temperature falls at a steady rate of 1°C for every 300m increase in height above sea-level, calculate the height above sea level at which the temperature is 5°C.

(b) _____ [2]

8. (a) Write down the next three terms of the following number sequence.

7, 4, 1, −2, −5, _____, _____, _____. [1]

(b) For the following sequences, **show** the rule and write down the next three terms.

(i) 2, 4, 3, 6, 5, 10, _____, _____, _____. [2]

(ii) 1, 3, 7, 15, 31, _____, _____, _____. [2]

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9. (a) Factorise the following expressions

(i) $3c + 3ac - 18bc$

(i) _____ [1]

(ii) $4x^2y^2 - 6xy^2 + x^2y^3$

(ii) _____ [1]

(b) Using algebraic rules (without the use of a calculator), find the value of

$$59^2 - 59 \times 6^2 + 77 \times 59$$

(b) _____ [2]

10. Simplify the following expressions, leaving your answers in the simplest form possible.

(a) $\dfrac{4}{3a^3b^2} \div \dfrac{2}{ab^3}$

(a) _____ [2]

(b) $12ab - 6bc + 5ba - 3ca + 7cb$

(b) _____ [1]

(c) $\dfrac{3}{2}(4e+12) + 4\left(5e - \dfrac{7}{2}\right)$

(c) _____ [2]

(d) $20xy - 16y(y-2x)$

(d) _____ [2]

(e) $p - [5p - 7 - 3(p+2)]$

(e) _____ [2]

11. Express the following as a single fraction in its simplest form.

(a) $\dfrac{x}{3} + \dfrac{2x}{5} - \dfrac{5x}{6}$

(a) _____ [1]

(b) $\dfrac{y-2}{3} - \dfrac{2y-3}{6}$

(b) _____ [2]

(c) $5e - \dfrac{3e-4}{2} + \dfrac{e-7}{3}$

(c) _____ [3]

12. (a) The sum of three numbers is 38. The second number is 4 times the first number. If the first number is x, write down and simplify an expression, in terms of x, for the third number.

(a) _____ [2]

(b) A man set off on a 10 km journey by running the first x km and then walking the rest of the way at 5km/h. Write down in terms of x, an expression for the time he spent walking.

(b) _____ [1]

(c) Two consecutive numbers are such that the larger number added to twice the smaller number gives a total of 88. Find the larger number.

(c) _____ [2]

End of Paper 1