Geylang Methodist School (Secondary)
Mid-Year Examination 2014

Name

Class   Index Number

MATHEMATICS

Paper 1

1 Express

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

Setter :   Mr Wong Kok Woei   **15 May 2014**

READ THESE INSTRUCTIONS FIRST

Write your name, index number and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions
If working is needed for any question, it must be shown with the answer.
Omission of essential working will result in the loss of marks.
Calculators should be used where appropriate.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to 3 significant figures. Give answers in degrees to one decimal place.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total number of marks for this paper is 50.

For Examiner's Use
50

This document consists of **10** printed pages.

Total Score: [50 marks]
Answer **ALL** questions in this paper.

1   (a)   Written as a product of its prime factors, $9000 = 2^x \times 3^y \times 5^3$.
          Find the values of x and of y.

    (b)   Written as a product of its prime factors, $27000 = 2^3 \times 3^3 \times 5^3$.
          Find the smallest positive integer k such that $27000k$ is a square number.

Ans: (a) $x =$ _____ [1]

             $y =$ _____ [1]

       (b) $k =$ _____ [1]

2   (a)   Calculate $\dfrac{23.54^2 - 3.245 \times 0.125}{5.354 - 2.115}$.
          Write down the first five digits on your calculator display.

    (b)   Write your answer to part (a) correct to 1 decimal place.

Ans: (a)   _____ [1]

       (b)   _____ [1]

3   Written as the product of its prime factors $1440 = 2^5 \times 3^2 \times 5$.

(a)   Express 300 as the product of its prime factors.

(b)   Hence,

(i)   write down the lowest common multiple of 1440 and 300, giving your answer as the product of its prime factors,

(ii)   find the greatest integer that will divide both 1440 and 300 exactly.

Ans: *(a)* _____ [2]

b(i) _____ [2]

b(ii) _____ [2]

4   Red bean costs x cents per kilogram.

Terry buys y dollars of red bean.

Express the weight of the red beans, that Terry buys, in terms of x and y.

Ans: _____ kg [2]

5   Write as a single fraction in its simplest form $\dfrac{2x+5}{3}-\dfrac{3x-2}{5}$.

Ans: _____ [3]

6   **(a)**   Express

  (i) $22\dfrac{1}{2}$ % as a fraction in its simplest form,

  (ii)   4 centimetres as a percentage of 8 metres.

  (b)   Eric gained 21 marks out of 35 in a test.

       Express this mark as a percentage.

Ans: *a(i)* _____   [1]

       a(ii) _____ %   [1]

       (b) _____ %   [1]

7   Without using a calculator, evaluate each of the following and express your answers in the simplest form. Show your working clearly. No marks will be given if no working is shown.

(a) $\dfrac{-15-(-5)\times(-3)}{2\times(-5)}$,

(b) $\left(7-2\times2\dfrac{1}{3}\right)-2\dfrac{1}{4}$.

Ans: *(a)* _____ [2]

       (b) _____ [3]

8   Solve the following equations.

(a) $2(3p+2)=3(p-4)$,

(b) $\dfrac{m+2}{6}=\dfrac{2m-2}{4}$.

Ans: *(a)* $p=$ _____ [2]

       (b) $m=$ _____ [3]

9 Simplify

    (a) $5d(d+3)-3(5d-2)$,

    (b) $\dfrac{2(3+y)}{3}-\dfrac{2-y}{4}$.
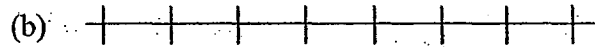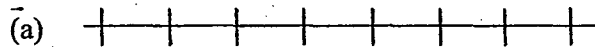
Ans: *(a)* _____ [2]

          (b) _____ [3]

10   Solve the inequalities and show your solutions on the number lines below.

   (a) $4x > 32$

   (b) $-3x < 24$

(a) $+\!-\!+\!-\!+\!-\!+\!-\!+\!-\!+\!-\!+\!-\!+$

(b) $+\!-\!+\!-\!+\!-\!+\!-\!+\!-\!+\!-\!+\!-\!+$

Ans: *(a)* _____ [2]

(b) _____ [2]

11   A handphone is sold at $484.50 after a discount of 15%.

   (a)   Find the marked price of the handphone.

   (b)   A further 6% discount is given for credit card payment. Find the amount payable if a customer makes payment using a credit card.

Ans: *(a)* $ _____ [1]

(b) $ _____ [1]

8

12 Factorise completely

    (a) $5v - 20uv$,

    (b) $ab - 3a + 2b - 6$,

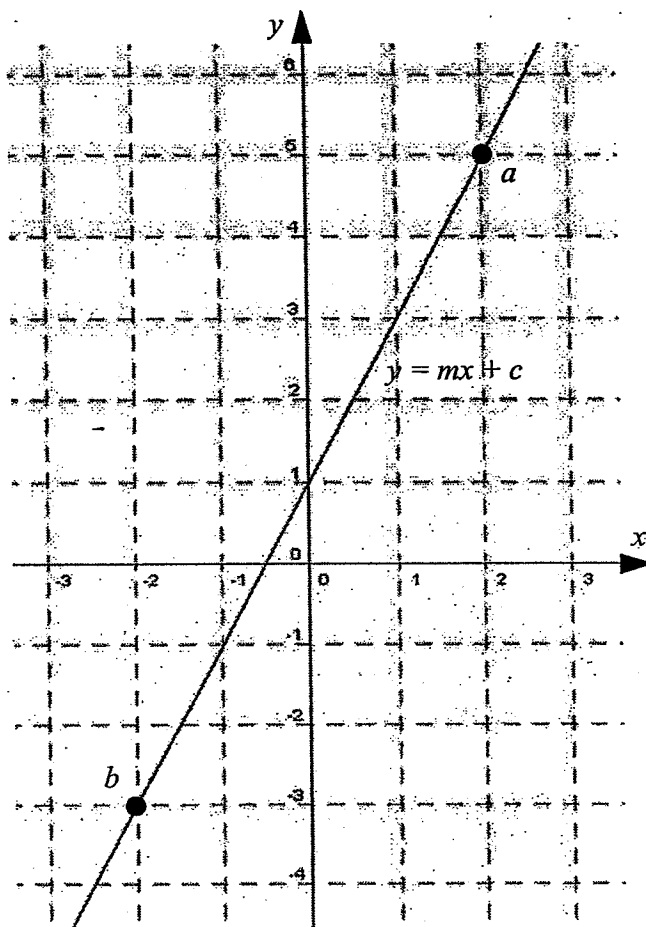   **(c)** $3mn - 2ab - an + 6mb$.

Ans: *(a)* _____ [1]

        (b) _____ [2]

        (c) _____ [3]

13   The figure below shows a linear graph in the form of $y = mx + c$.

(a)   Write down the coordinates of point a and point b.

(b)   Find the value of m.

Ans: *(a)* $a =$ _____   [1]

$b =$ _____   [1]

(b) $m =$ _____   [2]

End of Paper