Sing Yin Secondary School First Term Examination, 2013 – 2014 Mathematics 1

Form 3 Full marks: 100

Time allowed: 1.5 hours

Answer ALL questions.

Unless otherwise specified, all working must be clearly shown.

The diagrams in this paper are not necessarily drawn to scale.

Unless otherwise specified, numerical answers should either be exact or correct to 3 significant figures.

Convert 2 846 into a hexadecimal number. Show your steps.

(3 marks)

Rationalize ²/_{√3-1}.

(3 marks)

3. Simplify $\frac{\sqrt[4]{xy^2}}{xy^{-2}}$ and express the answer with positive indices.

(4 marks)

Simplify √15(√12 + √3).

(4 marks)

5. Express 1.083 in the form of $\frac{a}{b}$ where a and b are positive integers.

(4 marks)

6. Simplify $\frac{5\times10^{10}}{2.54\times10^{-2014}-1.35\times10^{-2012}}$ and express the answer in scientific notation.

(5 marks)

 The mode and the median of five integers a, b, c, d and e are 4 and 7 respectively, where a ≤ b ≤ c ≤ d ≤ e.

(a) Write down the values of a, b and c.

(b) Given that the mean of a, b, c, d and e is 6.6. Find the values of d and e.

(6 marks)

 In the figure, PQRS is a parallelogram and QT is the angle bisector of ∠PQR. QTU and USR are straight lines. ∠TUS = 55°. Find ∠UTS.

(4 marks)



 S3X Class was asked how many times they visited the museum last year. The mean of the number of visits is 2.6 and the results are shown in the table below;

Number of visits	1	2	3	4
Number of people	7	10	8	

(a) Find a.

(b) Write down the median number of visits.

(c) Write down the mode(s) number of visits.

(d) If another class S3Y of 40 students was asked the same question and the overall mean number of visits for two classes was 2.48, find the mean number of visits for S3Y.

> (6 marks) (6 marks)

10. Solve $\frac{x+5}{3} > 1-2x$ or $-x-1 \le 0$ and represent the solution graphically.

11. Solve $5^x + 5^{x+1} = 750$.

(4 marks)

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