

Final 2012-2013

F.3 MATHS

PAPER I

SECTION A&B

Exam Number			
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FINAL EXAMINATION 2012-2013

# Form 3 Mathematics Paper 1

Time allowed : 90 minutes

## Section A and B

### Question – Answer Book

#### Instructions

1. Write your examination number in the spaces provided on the top right corner of this cover page.
2. Section A carries 20 marks. Section B carries 40 marks.
3. Attempt ALL questions in this section.

Write your answers in the spaces provided in this Question-Answer Book. The last page is a supplementary answer sheet.

4. All working must be clearly shown, or mark may be deducted.
5. Unless otherwise specified, numerical answers should be either exact or correct to **3 significant figures**.
6. Use of HKEAA approved calculators is allowed.
7. This paper must be answered in English.
8. The diagrams in this paper are not necessarily drawn to scale.

Page No.	Marks
1	(8)
2	(12)
3	(10)
4	(9)
5	(12)
6	(9)
<b>Total Marks</b>	<b>(60)</b>

**Section A [20 marks]**

1. Simplify  $\frac{(2a^{-1})^2}{(3ab)^{-1}}$  and express the result with positive indices.

(2 marks)

2. (a) Make  $y$  the subject of the formula  $\frac{2}{x+y} = 5 - x$ .

(b) Find  $y$  when  $x = -2$ .

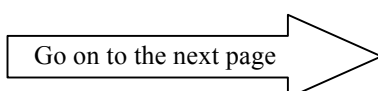
(3 marks)

3. (a) Factorize  $x^2 - y^2$ .

(b) Hence, or otherwise, evaluate  $998^2 - 4$  without using a calculator.

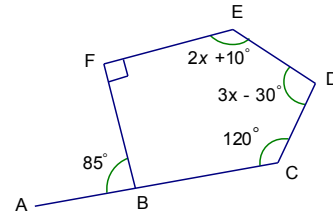
(3 marks)

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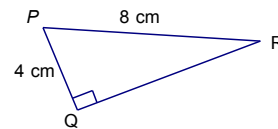


4. Write down the number of axes of symmetry and the order of rotational symmetry for a square. (2 marks)

5. Refer to the figure, find  $x$ . (2 marks)

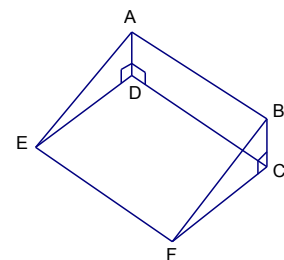


6. In the figure, find QR in simplified surd form. (3 marks)



7. Simplify  $\frac{15}{\sqrt{5}}$ . (2 marks)

8. In the figure,  $ABCD$  and  $CDEF$  are rectangles. It is given that  $AB = 20$  cm,  $BC = 5$  cm and  $CF = 12$  cm. Find the total surface area of the solid. (3 marks)



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**Section B [40 marks]**

9. Solve the following inequality and represent the solutions graphically.

$$\frac{4}{3}x - \frac{7}{15} > \frac{2}{5}x$$

(3 marks)

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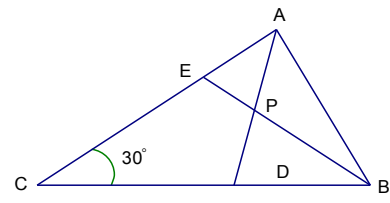
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10. In the figure,  $P$  is the orthocentre of  $\triangle ABC$ .  
 It is given that  $\angle ACB = 30^\circ$  and  $BC = 20$  cm.  
 Find  $CE$  in surd form. (4 marks)




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11. The prices of 10 toys in a toy shop are \$45, \$10, \$50, \$10, \$80, \$70, \$10, \$60, \$10, \$65.  
 The shop owner claims that the average price of the toys is \$10.  
 (a) Which average is used by the shop owner ?  
 (b) Can the shop owner's claim reasonably reflect the central tendency of the prices ?  
 Explain briefly.

(3 marks)

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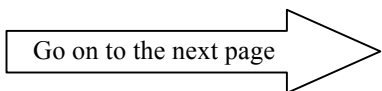
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**Supplementary Answer Sheet**

Lined area for writing answers.

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**- End of Section A and B -**

Page Total
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