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**MATHEMATICS**

**0580/41**

Paper 4 (Extended)

**October/November 2018**

**MARK SCHEME**

Maximum Mark: 130

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**Published**

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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This document consists of **8** printed pages.

**Abbreviations**

|     |                            |
|-----|----------------------------|
| cao | correct answer only        |
| dep | dependent                  |
| FT  | follow through after error |
| isw | ignore subsequent working  |
| oe  | or equivalent              |
| SC  | Special Case               |
| nfw | not from wrong working     |
| soi | seen or implied            |

| Question  | Answer  | Marks | Partial Marks   |
|-----------|---|-------|---|
| 1(a)(i)   | 2.25 final answer                                     | 2     | <b>M1</b> for $\frac{3}{5+3}$ or $\frac{6}{5+3}$ oe   |
| 1(a)(ii)  | 37.5  | 1     | <b>FT</b> <i>their</i> $\frac{(a)(i)}{6} \times 100$  |
| 1(a)(iii) | 5.5[0] or 5.499 to 5.500                              | 2     | <b>M1</b> for $6 \div 1.091$  |
| 1(b)      | 21  | 3     | <b>M2</b> for $15 \times \sqrt{\frac{352.8}{15 \times 12}}$ oe<br>or <b>SC2</b> for answer 16.8<br>or <b>M1</b> for $\sqrt{\frac{352.8}{15 \times 12}}$ or $\sqrt{\frac{15 \times 12}{352.8}}$ seen<br>or <b>M1</b> for a correct implicit statement for the length |
| 1(c)      | 525   | 3     | <b>M2</b> for $\frac{483}{100-8} [\times 100]$ oe<br>or <b>M1</b> for 483 associated with 92 [%]  |
| 2(a)(i)   | Translation<br>$\begin{pmatrix} 5 \\ 8 \end{pmatrix}$ | 2     | <b>B1</b> for each<br>Accept 5 right and 8 up   |
| 2(a)(ii)  | Enlargement<br>[sf] 0.5 oe<br>[centre] (0, -7)        | 3     | <b>B1</b> for each  |
| 2(a)(iii) | Rotation<br>90 [anticlockwise] oe<br>Origin oe        | 3     | <b>B1</b> for each  |
| 2(b)      | Image at (-8, 1) (-8, 5) (-8, 7)<br>(-4, 1)           | 2     | <b>B1</b> for reflection of flag <i>A</i> in the line $x = -1$<br>or $y = k$ or for vertices of triangle in correct place but not joined  |



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**MATHEMATICS**

Paper 4 (Extended)

**0580/41**

**October/November 2018**

**2 hours 30 minutes**

Candidates answer on the Question Paper.

Additional Materials:      Electronic calculator                      Geometrical instruments  
    Tracing paper (optional)

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.  
Write in dark blue or black pen.  
You may use an HB pencil for any diagrams or graphs.  
Do not use staples, paper clips, glue or correction fluid.  
**DO NOT WRITE IN ANY BARCODES.**

Answer **all** questions.  
If working is needed for any question it must be shown below that question.  
Electronic calculators should be used.  
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  $\pi$ , use either your calculator value or 3.142.

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 of the marks for this paper is 130.

This document consists of **16** printed pages.

1 Marianne sells photos.

(a) The selling price of each photo is \$6.

(i) The selling price for each photo is made up of two parts, printing cost and profit.  
For each photo, the ratio printing cost : profit = 5 : 3.

Calculate the profit she makes on each photo.

\$ ..... [2]

(ii) Calculate her profit as a percentage of the selling price.

..... % [1]

(iii) Calculate the selling price of a photo in euros (€) when the exchange rate is €1 = \$1.091 .

€ ..... [2]

(b) Marianne sells two sizes of photo.  
These photos are mathematically similar rectangles.  
The smaller photo has length 15 cm and width 12 cm.  
The larger photo has area  $352.8 \text{ cm}^2$ .

Calculate the length of the larger photo.

..... cm [3]

(c) In a sale, Marianne buys a new camera for \$483.  
This is a reduction of 8% on the original price.

Calculate the original price of the camera.

\$ ..... [3]

① (a) (i) PC : Profit      Total / Sell price  
                   5 : 3                    8  
                   x : y                    6

$$\frac{y}{3} = \frac{6}{8}$$

$$y = \frac{6}{8} \times 3$$

$$= \frac{18}{8}$$

$$= \frac{9}{4} = 2\frac{1}{4} //$$

ans: \$ 2.25

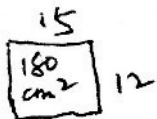
(ii)  $\frac{\$ 2.25}{\$ 6.00} \times 100\% = 37.5\% //$

(iii) € 1 = \$ 1.091

€ x = \$ 6

$$\frac{x}{1} = \frac{6}{1.091} = 5.499 \text{ or } 5.50 //$$

(b)



$$\frac{l^2}{15^2} = \frac{352.8}{180}$$

$$\frac{l}{15} = \sqrt{\frac{352.8}{180}}$$

$$l = \sqrt{\frac{352.8}{180}} \times 15 = 21 \text{ cm} //$$

(c) \$ 483 - 92%

original price → \$ x - 100%

$$\frac{x}{483} = \frac{100}{92}$$

$$x = \frac{100}{92} \times 483 = \$ 525 //$$