

**MARK SCHEME for the October/November 2011 question paper  
for the guidance of teachers**

**0580 MATHEMATICS**

**0580/12**

Paper 1 (Core), maximum raw mark 56

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.

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### Abbreviations

cao	correct answer only
cso	correct solution only
dep	dependent
ft	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
www	without wrong working

Qu.	Answers	Mark	Part Marks
1	$-2(^{\circ}\text{C})$	1	
2	95.52	1	
3	35	2	<b>M1</b> for $4 \times 8 + 3$ or $4 \times 8\frac{3}{4}$ or $4 \times 8\frac{1}{2} + 1$ or $\frac{525}{15}$ or $\frac{510}{15} + 1$ <b>SC1</b> for answer 34
4	$\frac{9}{8} < 115\% < 1\frac{1}{6} < 1.2$	2	<b>M1</b> for all decimals (or %), allow 1 error or <b>B1 for 3 in correct order</b> eg $115\% < \frac{9}{8} < 1\frac{1}{6} < 1.2$ <b>SC1</b> for reverse order
5	7.5	2	<b>M1</b> for $12 \times 5 \div (1 + 5 + 2)$ oe
6	4.58 cao	2	<b>B1</b> for 4.6(0) or 4.57 or 4.579 or 4.578 or 4.5789 or 4.5788... <b>SC1</b> for $4.58^3$ only
7	(a) $7.34 \times 10^8$ (b) $5.87 \times 10^{-4}$	1 1	
8	399 500 ( $\leq P <$ ) 400 500	1, 1	<b>SC1</b> for both correct reverse order
9	(a) 6.25 cao (b) 0.16 cao	1 1	
10	(a) ( $x =$ ) 20 (b) ( $y =$ ) 65	1 2	<b>B1</b> for $ABD = 65^{\circ}$ or $ADB = 95^{\circ}$
11	(a) $x + 2x + 2x + 75 = 360$  (b) ( $x =$ ) 57 cao	1  2	Allow $4x + x + 75 = 360$ or $5x + 75 = 360$ or $5x = 285$ <b>M1</b> correct first step after $5x + 75 = 360$ ie $5x = 360 - 75$ or $x + 15 = 72$ If zero <b>SC1</b> for correct solution to their linear equation seen in part (a) or in part (b) if (a) is blank

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12	$2\frac{1}{12}$ cao with correct working	3	<b>M1</b> (1+) $\frac{6}{12} + \frac{4}{12} + \frac{3}{12}$ oe <b>A1</b> (1) $\frac{13}{12}$ or $\frac{25}{12}$ oe
13	$(x =) 3$ $(y =) -1$ www	3	<b>M1</b> for consistent multiply and consistent add/subtract as appropriate Allow computational but not method errors Likely $5x + 4x = 17 + 10$ Other methods allowed <b>A1</b> for correct $x$ or $y$
14	(a) 13 (Red) $\frac{19}{60}$ (Yellow) $\frac{\text{their } 13}{60}$ oe  (Blue) $\frac{28}{60}$ oe (b) Blue	1 <b>1ft</b>  <b>1ft</b>	All needed for the mark isw cancelling or decimals after correct fractions seen  <b>Strict</b> ft their highest frequency
15	11.3	3	<b>M2</b> $22 \times 1.852 \times 1000/3600$ oe or <b>M1</b> $22 \times \text{figs } 1852$ or $22 \times 1000/3600$
16	(a) Any multiple of 56 (b) (i) 3, 9, 27 (in any order) (ii) 3 cao	1 2 1	<b>B1</b> for 2 correct
17	(a) $y = -2$ or $y + 2 = 0$ (b) (i) Ruled line parallel to <b>B</b> through (0, 2) (ii) $(y =) 3x + 2$ cao final answer	1 1 2	Must at least go through $(-1, -1)$  <b>B1</b> $3x + j$ $j \neq -1$ or $2$ or $kx + 2$ $k \neq 3$ <b>SC1</b> for $3x + 2$ then spoiled by the final answer
18	(a) 30 (b) (i) 12  (ii) 150 cao	1 <b>2ft</b>  1	<b>M1</b> for $360 \div \text{their (a)}$ (Any answer for (a) for method) Only ft for <b>A1</b> if $360 \div \text{their (a)}$ is an integer Other methods allowed if complete
19	(a) (i) (1, 5) (ii) $D$ at (5, 2) (iii) Lines $x = 3$ and $y = 3.5$ only drawn (b) Kite Trapezium	1 1 1 <b>1, 1</b>	Dep on (a)(ii) Extra line(s) zero Lines should at least meet the sides  1 mark for each
20	(a) Petrol cao (b) 72 (c) $\frac{1}{10}$	1 2 2	<b>M1</b> for $360 \times 12 \div 60$  <b>B1</b> $\frac{6}{60}$ or $\frac{3}{30}$ or $\frac{2}{20}$ or 0.1 or 10%