

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

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12	$2\frac{1}{12}$ cao with correct working	3	M1 (1+) $\frac{6}{12} + \frac{4}{12} + \frac{3}{12}$ oe A1 (1) $\frac{13}{12}$ or $\frac{13}{12}$
13	$(x =) 3$ $(y =) -1$ www	3	M1 for consistent multiply and consistent add/subtract as appropriate Allow computational but not method errors Likely $5x + 4x = 17 + 10$ Other methods allowed A1 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 1ft 1ft	All needed for the mark isw cancelling or decimals after correct fractions seen Strict ft their highest frequency
15	11.3	3	M2 $22 \times 1.852 \times 1000/3600$ oe or M1 $22 \times \text{figs } 1852$ 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	B1 for 2 correct
17	(a) $y = -2$ or $y + 2 = 0$ (b) (i) Ruled line parallel to B through (0, 2) (ii) $(y =) 3x + 2$ cao final answer	1 1 2	Must at least go through $(-1, -1)$ B1 $3x + j$ $j \neq -1$ or 2 or $kx + 2$ $k \neq 3$ SC1 for $3x + 2$ then spoiled by the final answer
18	(a) 30 (b) (i) 12 (ii) 150 cao	1 2ft 1	M1 for $360 \div \text{their (a)}$ (Any answer for (a) for method) Only ft for A1 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 1, 1	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	M1 for $360 \times 12 \div 60$ B1 $\frac{6}{60}$ or $\frac{3}{30}$ or $\frac{2}{20}$ or 0.1 or 10%