MARK SCHEME for the October/November 2011 question paper

for the guidance of teachers

0580 MATHEMATICS

0580/11   Paper 1 (Core), maximum raw mark 56

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	$\begin{pmatrix} -3 \\ 4 \end{pmatrix}$	1	
2	24 or 24 out of 30	2	**M1** for $\dfrac{4}{5} \times 30$
3	1.8	2	**M1** for $1.4 \div 7$ or **SC1** for **answer** 180
4	16	2	**B1** for 1cm to 0.5km oe or 800 000 (cm) or figs 16
5	**(a)** 25	1	
	(b) Green cao	1	
6	7.5(0) cao	2	**M1** for $\dfrac{258.75}{4.6}$
7	**(a)** 120	1	
	(b) $\dfrac{9}{25}$ cao	2	**B1** for $\dfrac{36}{100}$ or $\dfrac{18}{50}$
8	**(a)** 7853 to 7855 or 7850 or 7860 www	2	**M1** for $\pi \times 50^2$
	(b) 0.7853 to 0.7855 or 0.785 or 0.786	1ft	Their **(a)** ÷ 10 000 evaluated
9	**(a)** 15	1	
	(b) 2 (pm), 6 (pm)	1	
	(c) 15	1	Allow −15
10	**(a)** Rectangle or rhombus	1	Either one or both given
	(b) Isosceles (triangle)	1	
	(c) 5 cao	1	

11	$\dfrac{11k}{24k}$ final answer www		Method 1 (Addition first)
		B1	$\dfrac{8}{12}+\dfrac{3}{12}$ or $\dfrac{8+3}{12}$ oe
		M1	$\dfrac{1\times \text{their }11}{2\times \text{their }12}$
		A1	
			Method 2 (Multiplication first)
		B1	$\dfrac{2}{6}+\dfrac{1}{8}$ or $\dfrac{1}{3}+\dfrac{1}{8}$ oe
		M1	$\dfrac{ad+bc}{bd}$ for their $\dfrac{a}{b}+\dfrac{c}{d}$
		A1	
			If **M0**, **SC1** if $\dfrac{11}{12}$ is only followed by $\dfrac{11}{24}$ or if zero, **SC1** if work is entirely in decimals with answer of $0.458\dot{3}$ to 0.45835
12	**(a)** Correct ruled line	1	
	(b) –2.7, 0.7	1, 1ft	**B2ft** their ruled line through (0, 3) for two intersections given to 1 decimal place or **B1** for –2.70 to –2.75 and 0.70 to 0.75 or **B1ft** their ruled line through (0, 3) for two intersections not given to 1 decimal place
13	135 cao	3	**M1** for 720 or $(6 – 2) \times 180$ oe seen in working and **M1** for equation $180 + 4x =$ their 720 or **M1** for $(360 – 180) \div 4\ (= 45)$ oe seen in working and **M1** dep for $180 –$ their 45
14	**(a)** $9x – 10$ final answer	2	**B1** for $6x – 4$ or $3x – 6$ or for answer of $9x + j$, or $kx – 10$
	(b) $2x^3 – 3x$ final answer	2	**B1** for answer in form $2x^3 + m$ or $n – 3x$
15	**(a)** Negative	1	Ignore embellishments
	(b) Correct point	1	
	(c) (i) Accurate ruled line	1	
	(ii) English mark	1ft	Follow through their **(c)(i)**
16	**(a)** 70	2	**B1** for angle $ABD = 70°$ stated or seen on the diagram
	(b) (i) $(y =)$ 80	1	
	(ii) $(z =)$ 40	1	
	(iii) $(t =)$ 10	1ft	Follow through $90 –$ their y or $50 –$ their z

17	**(a)** 7.42 or 7.416... cao	3	**M2** for $\sqrt{\left(8^2 - 3^2\right)}$ or complete alternate method or **M1** for $x^2 + 3^2 = 8^2$ or better
	(b) 67.97 to 68(.0) cao	2	**M1** for $\cos(y) = \dfrac{3}{8}$ oe
18	**(a)** 75	2	**M1** for $\dfrac{500 \times 5 \times 3}{100}$ oe or **SC1** for answer of 575
	(b) 3.81(25)	4	**M2** for $500 \times 1.05 \times 1.05 \times 1.05$ or **M1** for $500 \times 1.05 \times 1.05$ **A1** for 578.81(25) or 78.81(25) seen and **A1ft** for value of $500(1.05)^3 - 500 -$ their **(a)**