March 2012

1380_2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		Five thousand and seventy six	1	B1 ignore spellings
	(b)		12 507	1	B1 accept mixture of digits and words for correct answer
	(c)		73 000	1	B1 accept answer in words
	(d)		700	1	B1 accept answer in words
2	(a)		8.5 cm	2	M1 for numerical answer in the range 8.3-8.7 or 83-87 (ignore incorrect units) or 8-9 with cm or 80-90 with mm A1 for answer 8.3-8.7 cm or 83-87 mm
	(b)		Obtuse angle	1	B1 for obtuse, ignore spelling
	(c)		145º	1	B1 for 145º ± 2º
3			Kilogram Litres inches	1 1 1	B1 for kg or kilograms B1 for litres or *l* B1 for inches

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4	(a)	Red 7 Blue 5 White 4 Grey 4	Correct frequencies	2	B2 for all frequencies correct (B1 for 2 tallies or 2 frequencies correct)
	(b)		Correct bars	2	B2 ft for all bar heights correct with or without gaps (B1 ft for 2 bar heights correct; also for completely correct bar-line graph or polygon.)
	(c)		Red	1	B1 ft
5	(a)		× near ½	1	B1 for cross near ½
	(b)		× at 0	1	B1 for cross at 0
	(c)		× near ¼	1	B1 for cross near ¼
6		17 – 5 = 12 12 ÷ 2 = $2x + 5 = 17$ $2x = 17 – 5$	6	3	M1 17÷2 (=8.5) or 17 – 5 (=12) M1 for correct order of operations –5 then ÷ 2 A1 cao **Alternative** M1 for forming the equation $2x + 5 = 17$ M1 for attempt to subtract 5 from both sides or divide both sides by 2 as the first step A1 cao **NB** For solutions involving trial and improvement award 3 marks (B3) for the correct answer of 6 but 0 marks for method; embedded solutions get 2 marks as long as the equation or working is complete.

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7	(a)(i)		(4, 3)	1	B1 cao
	(ii)		(–4, –2)	1	B1 cao
	(b)		Correct cross at (–2, 3)	2	B2 for correctly placing the cross at (–2, 3) (B1 for a cross at (–2, *y*) or at (*x*, 3)
8	(a)		A and C	2	B2 for both correct in either order (B1 for one correct)
	(b)		B and D	2	B2 for both correct in either order (B1 for one correct)
9		Examples: $7 \times 1 - 2 = 5$ (trial) $7 \times 3 - 2 = 19$ (trial) $7 \times 5 - 2 = 33$ (counter example)	Show rule breaks down	2	M1 for testing the rule for one odd number with a correct evaluation A1 for showing that the rule breaks down for 5 or 11 or any other counter example

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10	(a)		$4a$	1	B1 cao
	(b)		$2a + 7b$	2	B2 accept equivalents (B1 for $2a$ or $7b$ accept equivalents; ignore signs)
	(c)		4	1	B1 cao
	(d)		12	1	B1 cao
	(e)	$2t = 3 - 8$ $2t = -5$ $t = -5 \div 2$	-2.5	2	M1 for showing attempt to subtract 8 from both sides or divide both sides by 2 as the first step A1 for -2.5 accept $\frac{-5}{2}$ oe
11	(a)		12, 11	2	B1 for first number as 12 B1 for second number as11
	(b)		41	2	M1 for $4n+1$ seen in (b) or $4\times10+1$ or attempt to count on from 21 with at least three 4's added correctly A1 cao
	(c)		$4n + 1$	2	M1 for $4n$+k where k≠1 or is absent A1 for $4n + 1$ NB: n=$4n$+1 B1

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12		2 × 55 = £1.10 4 × 28 = £1.12 1 × £4.95 Total = £7.17	£2.83	4	M1 for either 2 × 55 (=£1.10) or 4 × 28 (=£1.12) oe M1 for attempt to total for three different items M1 for attempt to take their total away from £10 with consistent units A1 cao **Alternative** M1 for either 2 × 55 (=£1.10) or 4 × 28 (=£1.12) M1 for attempt to subtract one item from £10 M1 for attempt to subtract three different items from £10 with consistent units A1 cao **SC** B2 for £4.22
13	(a)	2 × 6 + 2 × 4 12 + 8	20	2	M1 for 2 × 6 + 2 × 4 A1 for 20
	(b)	24 = 2×*l* + 2×3	9	2	M1 for substituting 24 and 3 into the formula or sight of 18 A1 for 9 **Alternative** M1 for $2l = P - 2w$ or sight of 24 – 2×3 A1 for 9

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14	(a)		London	1	B1 accept 7
	(b)		Aberdeen	1	B1 accept –9
	(c)		10	1	B1 accept -10
	(d)		Aberdeen and Dublin	1	B1 accept –9 and –5
15	(a)	6, 8, 12, 18, 19, 24	15	2	M1 for arranging in order or for answer of 12 or $\frac{12+18}{2}$ or $\frac{18+6}{2}$ A1 cao
	(b)	(24 + 8 + 18 + 6 + 12 + 19) ÷ 6 = 87 ÷ 6 =	14.5	2	M1 for adding the 6 numbers **and** dividing by 6 or sight of 87 ÷ 6 or 71.16…. A1 oe
	(c)	16 × 7 = 112 112 – 87 or (16-14.5)=1.5 1.5×6+16=	25	2	M1 ft for 16 × 7 – "87" or increases the 6 marks by 1½ A1 for 25 or ft from (b)
16	(i)	360 – (140 + 90)	130	2	M1 for 360 – (140 + 90) A1 for 130
	(ii)		reason	1	B1 for angles at a point add to 360

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Question		**Working**	**Answer**	**Mark**	**Notes**
17		$250 \times \frac{4}{100} = £10$ £10 × 3	£30	3	M2 for $\frac{250' 4' 3}{100}$ oe (M1 for $250 \times \frac{4}{100}$ oe or sight of 10) A1 for £30 cao **SC** B2 for £280
18	(a)	350 × 1.34	469	2	M1 for 350 × 1.34 or digits 469 A1 cao
	(b)	67 ÷ 1.34 = 50 50 – 47.50 OR 47.50 × 1.34 =63.65 67 – 63.65 = 3.35 3.35 ÷ 1.34 =	2.50	3	M1 for 67 ÷ 1.34 or 50 seen M1 (dep) for "50" – 47.50 A1 for 2.5(0) **OR** M1 for 47.5(0) × 1.34 or 63.65 or 3.35 seen M1 (dep) for 67 – "63.65" (= 3.35) **and** "3.35" ÷ 1.34 A1 for 2.5(0)
19	(a)		Correct reflection	2	M1 for a correct reflection in any line A1 for a correct reflection in the *y* axis
	(b)		Correct enlargement	2	M1 for enlarging 2 adjacent sides correctly or correct enlargement using incorrect scale factor (≠1) A1 cao
20	(a)		048º		B1 for correct bearing measured within tolerance of ±2º
	(b)		Bearing drawn	2	B1 for correct bearing of 150º drawn tolerance of ±2º B1for correct distance of 6 cm ± 2 mm

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Question		**Working**	**Answer**	**Mark**	**Notes**
21	(a)	$\frac{\sqrt{6.25+3.75}}{2.2}$ $\frac{\sqrt{10}}{2.2}$	1.4373(98936...)	3	B3 for 1.4373(98936...) or 1.4374 (B2 for answer of $\frac{5\sqrt{10}}{11}$ or sight of $\sqrt{10}$ or 3.162… or 1.43 or 1.44 or 1.437) (B1 for sight of 2.2 or 10)
	(b)		1.44	1	B1 for 1.44 (or ft from part(a) provided (a) is given to at least 3 decimal places).
22		$x = 3$ gives 36 $x = 4$ gives 76 $x = 3.1$ gives 39.(091) $x = 3.2$ gives 42.(368) $x = 3.3$ gives 45.(837) $x = 3.4$ gives 49.(504) $x = 3.5$ gives 53.(375) $x = 3.6$ gives 57.(456) $x = 3.7$ gives 61.(753) $x = 3.8$ gives 66.(272) $x = 3.9$ gives 71.(019) $x = 3.15$ gives 40.7(05875) $x = 3.16$ gives 41.0(34496) $x = 3.17$ gives 41.3(65013) $x = 3.18$ gives 41.6(97432) $x = 3.19$ gives 42.0(31759)	3.2	4	B2 for trial $3.1 \leq x \leq 3.2$ (B1 for trial $3 \leq x \leq 4$) B1 for a different trial $3.15 \leq x < 3.2$ B1 (dep on at least one previous B1) for 3.2 Accept trials correct to the nearest whole number (rounded or truncated) if the value of x is to 1 dp but to 1dp (rounded or truncated) if the value of x is to 2 dp NB: no working scores no marks, even if the answer is correct. All trials must be evaluated.

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Question		**Working**	**Answer**	**Mark**	**Notes**
23		$16^2 - 8^2 = 192$ $\sqrt{192} = 13.85640646$	13.86	3	M1 for showing the intention to square and attempt to subtract or sight of $16^2 - 8^2$ or 192 M1 for $\sqrt{(256 - 64)}$ or $\sqrt{192}$ or $8\sqrt{3}$ A1 for answer in range 13.85 to 13.86
24	(a)	$1 - (0.15 + 0.25 + 0.20 + 0.16)$	0.24	2	M1 for $1 - (0.15 + 0.25 + 0.20 + 0.16)$ or $1 - 0.76$ A1 for 0.24 oe
	(b)	300×0.25	75	2	M1 for 300×0.25 A1 cao
25		$5 \times 2 = 10$ $15 \times 8 = 120$ $25 \times 9 = 225$ $35 \times 7 = 245$ $45 \times 4 = 180$ 780 $780 \div 30 = 26$	26	4	M1 for finding fx consistently within intervals including the end points (allow 1 error) M1 (dep) for use of all correct mid-interval values M1 (dep on first M1)for $\sum fx \div \sum f$ A1 cao