Silver Level

Mark Scheme 4

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Difficulty Level	Silver
Booklet	Mark Scheme 4

Time Allowed: **60 minutes**

Score: **/50**

Percentage: **/100**

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>90%	80%	70%	60%	50%	40%	30%	20%	<20%

Question Number	Working	Answer	Mark	Notes
1.	$2a = -4$ or $4b = 14$	$a = -2 \quad b = 3.5$	3	M1 Correctly eliminate 1 variable: Accept $3(5 - 2b) + 2b = 1$ oe A1 A1 Ans dep on M1 Ans only or T&E = M0A0A0
				Total 3 marks

2. (a) (i)	$10x + 5 - 9x + 3$	$x + 8$	2	B2 B1 for 3 correct terms with correct signs or 4 correct terms ignoring signs
(ii)	$y^2 + 5y - 7y - 35$	$y^2 - 2y - 35$	2	B2 B1 for 3 correct terms with correct signs or 4 correct terms ignoring signs N.B. $-2y$ (with no more y terms) implies $+5y - 7y$
(b)	$V / \pi h = r^2$ (oe)	$\sqrt{\frac{v}{\pi h}}$ oe	2	M1 isolating r^2 (must be correct equation). A1 condone ± Allow $\sqrt{v} \div \sqrt{\pi} \div \sqrt{h}$ etc
				Total 6 marks

3. (a)		78000	1	B1
(b)	$(4.62 \times 10^5) + (7.8 \times 10^4)$	5.4×10^5	2	M1 Intention to add correct values or digits 54 A1 Answer must be in standard form
				Total 3 marks

4.	(2) overlapping circles, 6 outside circles 10 in F only, 8 in S only, 7 in overlap	18	4	M1 M2 Venn diagram sets have to labelled if not M2 then M1 for any two values in correct place in union or 7 in overlap A1
	Alt Method 31 – 6 (=25) or (17+15+6) – 31 (=7) oe "25"–17 (=8) {Sp} and "25"– 15 (=10) {Fr} or 17 – "7" (=10) {Fr} and 15 – "7" (=8) {Sp} "10" + "8"	18	4	M1 Identifies union or intersection M1 dep Identifies components to add M1 dep Adds components A1 (Ans only = M3A1) or M2 for "25" – "7"
				Total 4 marks

5.	$2y = 6$ or $4x = -6$	$x = -1.5$ $y = 3$	3	M1 Adding or subtracting correctly or correct substitution leading to one correct equation and one unknown. A1 A1 dep on M1 awarded otherwise M0A0
				Total 3 marks

6. (a)		Mars	1	B1 Accept 6.8×10^3 oe
(b)	$1.2 \times 10^5 - 5.0 \times 10^4$ or 70000	7×10^4	2	M1 Correct values with intention to subtract A1 M1 A0 for 70000 with no working
(c)	$(1.4 \times 10^6) \div (3.5 \times 10^3)$	1:400 oe	2	M1 Correct values with intention to divide A1 M1 A0 for 400 or 400:1 with no working
				Total 5 marks

7 (a)	Correct $v \div h$	1.5 oe	2	M1 e.g. $6 \div 4$ A1 accept improper fractions (e.g 3/2) N.B. $1.5x$ = M1A0
(b)		$y =$ "1.5"$x - 1$oe	1	B1 ft from (a)
(c)	$y =$ "1.5"x + c oe or "1.5"x + 3 or 0 = – 2 x gradient from (a) + c	$y =$ "1.5"x + "c" oe	2	M1ft from (a) $c \neq -1$ (c must be a numeric value) (substituting $y = 0$ and $x = -2$ into $y = mx + c$) A1ft "c" = follow through using numeric value of gradient in (a)
				Total 5 marks

8.	$2.1 - 1.7$ (= 0.4) $6^2 +$ "0.4"^{2} (= 36.16) √ "36.16"	6.01	4	M1 M1 dep M1 dep A1 awrt 6.01 N.B. Accept working in cms throughout for method marks
				Total 4 marks

9.	$\frac{A}{2\pi r} = r + h$ or $A = 2\pi r^2 + 2\pi rh$	$\frac{A}{2\pi r} - r = h$ oe	2	M1 Correct first step A1 e.g. $\frac{A-2\pi r2}{2\pi r}$ Give full credit to equivalent correct expressions
				Total 2 marks

10. (i)		18	1	B1
(ii)		15	1	B1
(iii)		9	1	B1
(iv)		22	1	B1
				Total 4 marks

11.	$7^2 = 9^2 + 13^2 - 2 \times 9 \times 13 \cos x$ oe $234 \cos x = 201$	30.8	3	M1 M1 or $\cos x = 0.86$ or better A1 30.798… awrt 30.8
				Total 3 marks

12 (a)	2 x 3 x x x = (x + 10)(3x + 20) or $6x^2$ = (x + 10)(3x + 20) $6x^2 = 3x^2 + 50x + 200$		3	M2 If not M2 then M1 for 2 x 3x x x or 2 x $3x^2$ or $6x^2$ or (x + 10)(3x + 20) A1 Dependent on at least M1
12. (b)	(3x +10)(x – 20) (=0) Marks can be awarded in b) if seen in a) 20 x 3 x 20	x =20 1200	5	M2 or $x = \frac{50 \pm \sqrt{2500+2400}}{6}$ If not M2 then M1 for (3x ±10)(x ±20) or $x = \frac{--50 \pm \sqrt{-50^2-4x3x-200}}{2 \times 3}$ condone 1 sign error A1 dep on M1 in b). Ignore negative root (– 3.3 rec) M1 A1 dep on 1st M1 in b)
				Total 8 marks