

Question			Answer	Marks	Part Marks and Guidance
1			$15x + 5$	2	M1 for $3(5x + 2) - 1$ brackets oe required for this M1

2	(a)	(i)	25	1	
		(ii)	$8\sqrt{5} - 6$ isw	2	Or B1 for $4\sqrt{5} - 3$.
	(b)		-0.5	3	B1 for $16x - 12$ And B1 for $16x - 12 + 27 = 7$ or better Or B1 for $f(x) = -5$ And B1 for $4x - 3 = -5$ or better

3	(a)		82	1	
	(b)		$6 - 7x$	2	B1 for 6 or $-7x$

4	(a)		0.6 or $\frac{3}{5}$	2	M1 for $5x - 2 = 1$	
	(b)		$10x + 3$	2	M1 for $5(1 + 2x) - 2$	

5	(a)		19	1		
	(b)		$15t + 3$	3	nfww Condone $3 + 15t$ M1 for $5(2 + 3t) - 7$ M1 for $10 + 15t - 7$	Allow x instead of t for M marks

6	(a)		-5	1		
	(b)		$7/2$ oe	1		
	(c)		$1 - 2x$ or $1 + -2x$ oe as final answer or $a = 1$ and $b = -2$	2	M1 for $7 - 2(3 + x)$ Or SC1 for $1 + 2x$	NB not 1 mark for each term

7			$16x^2 + 12x + 1$ isw	3	Allow 1 per term	
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8	(a)		14	1		
	(b)	(i)	$6x + 4$ final answer	1		
		(ii)	$6x + 2$ final answer	1		

9	(a)	$r = [\pm]\sqrt{\frac{S}{4\pi}}$ oe as final answer	3	<p>nfw For all 3 marks, 'r = 'must be stated; allow SC2 if rhs is correct OR M1 for $\frac{S}{4\pi} = r^2$ or $\sqrt{S} = \sqrt{4\pi} r$ oe M1 for taking square root correctly FT <i>their</i> $r^2 = \dots$ or $4r^2 = \dots$ oe or for $\frac{\sqrt{S}}{k}$ oe ft <i>their</i> $\sqrt{S} = kr$ If M0, allow B1 for $[r] = \frac{\sqrt{S}}{4\pi}$ Or allow B1 for correctly finding r as the subject FT a wrong first step</p>	<p>Allow 'triple decker' fractions for Ms but not for 3 marks eg 2 for $r = \sqrt{\frac{S \div 4}{\pi}}$ (square root symbol must extend below fraction line) M0 if r is on both sides Allow M1 for complete correct reverse flowchart</p>
	(b)	($\frac{3}{10}$ oe	1		
	(ii)	0 found as denominator without further wrong working/comment	1	Accept denominator = 0 oe or 'cannot calculate 3/0' or '3/0 = error'	0 for 3/0 = 0 or for 3/0 = 3 etc or 'you can't divide 0 by 3'

10	(a)	(i) $1/6$	2	Condone answer in range 0.16 - 0.17 M1 for $1 - 6x = 0$ or better	mark at most accurate e.g. 0.16 = 0.1 gets 2 marks M0 for $6f(x) = 1$
		(ii) $a = 1$ $b = -12$	1 1	After 0 scored, M1 for $1 - 6(2x)$ seen	
	(b)	$2[x +] 4$	1		

Question		Answer	Marks	Part Marks and Guidance	
11	(a)	$5a + 5b [= 2ab]$ $5b = 2ab - 5a$ oe $[5b =] a(2b - 5)$ oe $[a =] \frac{5b}{2b - 5}$ oe Or for those who divide first: $a + b = \frac{2ab}{5}$ $a - \frac{2ab}{5} = -b$ $a(1 - \frac{2b}{5}) = -b \text{ or } \frac{a}{5}(5 - 2b) = -b$ $a = \frac{-5b}{5 - 2b}$	M1 M1 M1 M1 Or M1 M1 M1	for expanding brackets correctly for collecting a terms correctly on one side, non- a terms on the other, FT for factorising correctly FT; may be implied by final answer for correct division FT by <i>their</i> two-term factor Or oe for each mark [apply equivalent FTs as above] M1 M1 M0 for triple-decker fraction in final answer	[no ft for remaining Ms from rhs = $2a + b$ oe resulting in one a term when rearranged] condone no equation award 4 marks only for correct work; withhold last M1 if further work such as incorrect cancelling
	(b)	(i)	2	1	
		(ii)	$6x + 3$ as final answer	2	M1 for $2(3x + 4) - 5$