1	(e)		$5(2d + 3)$		1	B1

2	(a)		2	M1	for $(x \pm 6)(x \pm 7)$

3	(b)		2	M1	for any **correct** partial factorisation with at least 2 factors, one of which must be a letter **or** the correct common factor with no more than 1 error inside the bracket
		$8m^2 g^3(2m + 3g^2)$		A1	

4	a		$5(5f - 2)$	1	B1

5	b		$3f(3e - 4)$	2	B2
					(B1 for $3(3ef - 4f)$ or $f(9e - 12)$ or $3f(ke - 4)$ or $3f(3e - m)$ where $k \neq 0$ and $m \neq 0$)

6	(b)		$5(7 + f)$	1	B1

7	(b)		$5y(1 + 4y)$	2	B2
					If not B2 then award B1 for $5(y + 4y^2)$ **or** $y(5 + 20y)$ **or** $5y(a + 4y)$ where a is an integer and $a \neq 0$ **or** $5y(1 + by)$ where b is an integer and $b \neq 0$

8	(b)		$3(v - 7)$	1	B1

9	(a)		$5a^4c^3(5c^4d + 9a^5h)$	2	B2
					If not B2 then award B1 for any **correct** factorisation with at least 2 of: the 5, a term in a, a term in c, outside the bracket eg $5ac(5a^3c^6d + 9a^8c^2h)$ **or** $a^2c(25a^2c^6d + 45a^7c^2h)$ (NB: not just a^4 etc as we want to know students have considered more than just one letter or the number) **or** the correct common factor **and** a 2 term expression inside the bracket eg $5a^4c^3(5c^4 + 9a^5)$ (this is missing d in first term and h in the second but the common factor is correct)

10	(i)	$(x \pm 6)(x \pm 4)$			2	M1 or $(x + a)(x + b)$ where $ab = -24$ **or** $a + b = 2$
		Working not required, so correct answer scores full marks	$(x + 6)(x - 4)$			A1
	(ii)	*Answer must come from the factors in (i) as the questions says 'Hence solve…'*	$-6, 4$		1	B1 **Must** follow through from their factors in (i), so even if the answers 8 and −6 are given, the mark can only be awarded if it follows from the factorisation in (i) (dep on 2 factors)
						Total 3 marks
					NB:	Some students may show the whole of their working in the space for (i) or (ii). Please award the marks for (i) and (ii) so long as there is no ambiguity.

11	b		$2(2c - 7)$	1	B1

12	c	$(x \pm 3)(x \pm 8)$			2	M1 or for $(x \pm a)(x \pm b)$ where $ab = 24$ or $a + b = -11$
			$(x - 3)(x - 8)$			A1

13	(b)		$2p(4p - 1)$	2	B2 B1 for $p(8p - 2)$ or $2(4p^2 - p)$ or $2p(4p - 1)$ with two terms inside the bracket with one term correct.

14	(a)		$5y^3(3y + 4u)$	2	B2	for $5y^3(3y + 4u)$
					(B1	for $5y(3y^3 + 4uy^2)$ **or** $5y^2(3y^2 + 4uy)$ **or** $y^2(15y^2 + 20uy)$ **or** $y^3(15y + 20u)$ **or** $5y^3(...)$ where there is only one mistake in the brackets)

15	(b)(i)	$(x \pm 9)(x \pm 4)$		2	M1	for $(x \pm 9)(x \pm 4)$ **or** for $(x + a)(x + b)$ where $ab = -36$ or $a + b = 5$
			$(x + 9)(x - 4)$		A1	
	(ii)		$-9, 4$	1	B1	ft from (b)(i)

16	(g)		$3(3t - 2)$	1	B1	

17	(b)(i)			2	M1	for $(x \pm 9)(x \pm 1)$ **or** for $(x + a)(x + b)$ with $ab = -9$ or $a + b = 8$
			$(x + 9)(x - 1)$		A1	for correct factors
	(ii)		$-9, 1$	1	B1	ft dep on factorising in the form $(x + p)(x + q)$

18	(d)		$5cd^2(2c^2 + 3d^2)$	2	B2	for $5cd^2(2c^2 + 3d^2)$ B1 for a correct partial factorisation eg $5(2c^3d^2 + 3cd^4)$ or $cd^2(10c^2 + 15d^2)$ **or** $5d^2(2c^3 + 3cd^2)$ **or** $5c(2c^2d^2 + 3d^4)$ **or** $5cd(2c^2d + 3d^3)$ etc or $5cd^2$(a 2 term expression with just one error)

19	(d)		$3(3y - 4)$	1	B1	

20	(i)	$(x \pm 3)(x \pm 8)$		2	M1	**or** $(x + a)(x + b)$ where $ab = -24$ **or** $a + b = 5$
			$(x - 3)(x + 8)$		A1	
	(ii)		$3, -8$	1	B1ft	Must ft from their answer to (i) ft from their incorrect factors in the form $(x + a)(x + b)$
						Total 3 marks

21	(a)		$3(2x - 5)$	1	B1	

22	(c)	$(n \pm 3)(n \pm 4)$		2	M1 for $(n \pm 3)(n \pm 4)$ or $(n + a)(n + b)$ where $ab = 12$ or $a + b = -7$ Condone use of a different letter to n
			$(n - 3)(n - 4)$		A1

23	(b)(i)	$(v \pm 7)(v \pm 5)$		2	M1	for $(v \pm 7)(v \pm 5)$ **or** $(v + a)(v + b)$ where $ab = -35$ **or** $a + b = -2$
			$(v - 7)(v + 5)$		A1	isw if student goes on to solve the equation in this part
	(ii)		$7, -5$	1	B1ft	answer must ft from their $(v + a)(v + b)$ in (b)(i). Award B0 for $7, -5$ if no marks scored in (i)

24	(c)		$5b^3c(3b^2 - 7c^8)$	2	B2	fully correct **or** B1 for a correct partial factorisation with at least two terms outside the bracket eg $5b^3(3b^2c - 7c^9)$ or $5c(3b^5 - 7b^3c^8)$ etc **or** the fully correct factor outside the bracket with a two term expression in terms of b and c inside the bracket eg $5b^3c(15b^2 - c^8)$

25	(a)		$3c^2(6cd^2-7)$	2	B2	fully correct **or** B1 for a correct partial factorisation with at least two terms outside the bracket ie $3c(6c^2d^2-7c)$ or $c^2(18cd^2-21)$ **or** the fully correct factor outside the bracket with two terms inside the bracket and at most one mistake $3c^2(\ldots\ldots)$
	(b) (i)	eg $(y\pm6)(y\pm3)$ or $y(y+3)-6(y+3)$ or $y(y-6)+3(y-6)$		2	M1	or $(y+a)(y+b)$ where $ab=-18$ **or** $a+b=-3$ or factorisation which expands to give 2 out of 3 correct terms
		[allow use of x rather than y]	$(y-6)(y+3)$		A1	
	(ii)		6, −3	1	B1	ft must come from their factors in (b)(i)

26	(b)		$3(2y+9)$	1	B1

27	(a)	$(y\pm6)(y\pm8)$ or $y(y+6)-8(y+6)$ or $y(y-8)+6(y-8)$		2	M1 or for $(y\pm a)(y\pm b)$ where $ab=-48$ or $a+b=-2$
			$(y+6)(y-8)$		A1 oe Allow any letter for y

28	(e)		$g(g+7)$	1	B1

29	(c)		$7x^2y^2(2y^2+3x)$	2	B2 B1 for a correct factorisation with at least 2 factors outside (eg $7x$, x^2, xy, etc) eg $7x(2xy^4+3x^2y^2)$ eg $x^2y^2(14y^2+21x)$ or for the correct common factor with just one mistake inside the bracket eg $7x^2y^2(2y+3x)$ which is missing the squared on the y term

30	(b)	$(y\pm5)(y\pm4)$ or $(5\pm y)(4\pm y)$ or $y(y-4)-5(y-4)$ or $y(y-5)-4(y-5)$		2	M1 for $(y\pm5)(y\pm4)$ **or** $(5\pm y)(4\pm y)$ **or** for $(y+a)(y+b)$ where $ab=20$ or $a+b=-9$
		Correct answer scores full marks (unless from obvious incorrect working)	$(y-5)(y-4)$		A1 oe Allow any letter for y Accept $(5-y)(4-y)$

31	(a)		$3(2y-9)$	1	B1 accept $3(-9+2y)$

32	(c)		$4a^2b(4b^2+5a)$	2	B2 B1 for any correct partial factorisation with at least 2 factors, **or** the correct common factor with no more than 1 error inside the bracket
	(d)(i)	$(x\pm11)(x\pm2)$		2	M1 for $(x\pm11)(x\pm2)$ **or** for $(x+a)(x+b)$ with $ab=-22$ or $a+b=9$
		Correct answer scores full marks (unless from obvious incorrect working)	$(x+11)(x-2)$		A1 for correct factors
	(ii)		−11, 2	1	B1ft ft dep on factorising in the form $(x+p)(x+q)$

33	(b)		$6(2a-3b)$	2	B2 If not B2, then B1 for $3(4a-6b)$ or $2(6a-9b)$ or 6(expression with one error)