First name: _____ Last name: _____ Student ID: _____

Polynomials 2 Homework

1. Factor.

(1) $6x^2 - 7x + 2$	(2) $4m^2 + 27m + 18$	(3) $3w^2 - 10w + 8$
(4) $15t^2 - t - 2$	(5) $2m^2 - m - 10$	(6) $4x^2 + 25x + 6$
(7) $3p^2 - 2p - 5$	(8) $2n^2 + 3n - 9$	(9) $3n^2 - 8n + 4$
(10) $5n^2 + 19n + 12$	(11) $2v^2 + 11v + 5$	(12) $2n^2 + 5n + 2$
(13) $7a^2 + 53a + 28$	(14) $4x^2 - 15x - 25$	(15) $4b^2 + 5b - 6$
(16) $5x^2 - 18x + 9$	(17) $4n^2 - 15n - 25$	(18) $4x^2 - 35x + 49$
(19) $4n^2 - 17n + 4$	(20) $6x^2 + 7x - 49$	(21) $6x^2 + 37x + 6$
(22) $6n^2 + 5n - 6$	(23) $4p^2 - 12p + 5$	(24) $x^2 + 4xy - 5y^2$

2. Factor.

(1) $-6a^2 - 25a - 25$	(2) $16b^2 + 60b - 100$	(3) $15n^2 - 27n - 6$
(4) $25p^2 + 70p + 40$	(5) $9k^2 + 66k + 21$	(6) $3x^2 + 21xy + 30y^2$
(7) $30m^2 + 25m - 20$	(8) $2x^2 + 17xy + 30y^2$	(9) $18x^2 + 12x + 2$
(10) $-6x^2 + 19xz - 10z^2$	(11) $-m^2 + 3mn + 10n^2$	(12) $2x^2 + 8xy + 6y^2$
(13) $-3u^2 + 3uv + 36v^2$	(14) $-9m^8 + 21m^4 + 60$	(15) $6x^6 + 15x^3 - 9$
(16) $4m^6 + 21m^3 - 18$	(17) $9x^4 - 3x^2 - 12$	(18) $4t^{2x} + 31t^x + 21$

3. Factor.

(1) $x^3 - 27$	(2) $x^3 + 64$
(3) $8x^3 + 125$	(4) $3x^3 - 24y^3$
(5) $16x^4 - 54x$	(6) $16x^2y^2 + 250x^2y^5$

Word Problem.

1. If $a + b = 6$, $ab = 7$, what is the value of $a^2b + ab^2$?

2. If $x + y = a$ and $xy = b$, find the value of $x^2y + xy^2 + x^2 + y^2$.

3. If $x^2 + 2(m-1)x + 9$ is a perfect square, find the value of m.

4. Given $2a - b = 1/3$, find the value of $12a^2 - 12ab + 3b^2$.

5. Given $a^2 + a + 1 = 0$, find the value of $a^{1881} + a^{1882} + a^{1883} + \ldots + a^{1888} + a^{1889}$

Challenge problems

1. Factoring

(a) $a(a - b) - a(b - a)^2$	(b) $4a(x - 2)^2 - 2b(2 - x)^3$
(c) $a(x - y)^2 - b(y - x)$	(d) $a^2(x + y) + a(-x - y) + x + y$
(e) $m^2(a^2 + b^2) - mn(b^2 + a^2) + mp(a^2 + b^2)$	(f) $a^2 + 2a - b^2 + 1$

(g) $4a(x + 3y)^2 + 12a(x + 3y) + 9a$	(h) $a^2 + 2a(b - c) + (b - c)^2$
i) $2^{16} - 1$	j) $x^2 + 2mn - m^2 - n^2$

k) $2xy^3 - x^2y^2 - y^4 + x^2z^2 - 2xyz^2 + y^2z^2$