

Fifteenth Set of Homework for Math 05

Nikos Apostolakis

Please note: You should fully justify your answers.

1 Factoring quadratic trinomials

1. Factor completely:

(a) $4x^2 + 4x - 3$

(b) $x^2 + 4x - 21$

(c) $x^2 - 10x + 25$

(d) $3x^2 + 5x - 2$

(e) $-x^2 + x + 6$

(f) $x^2 + 5x + 6$

(g) $x^2 - 5x + 6$

(h) $-x^2 - x + 6$

(i) $x^2 - 13x + 42$

(j) $x^2 - x - 42$

(k) $x^2 + 8x + 12$

(l) $15x^2 - 23x + 4$

(m) $-6x^2 + 11x + 7$

(n) $-x^2 - 12x - 35$

(o) $x^2 - x - 56$

(p) $x^2 + 8x - 9$

(q) $x^2 - 6x + 9$

(r) $9x^2 + 12x + 4$

(s) $x^2 - 17x + 60$

(t) $x^2 + 17x - 60$

(u) $x^2 + 21x - 100$

(v) $21x^2 + 25x - 4$

2 Factoring using identities

1. Factor completely:

(a) $x^2 - 81$

(b) $9x^2 - 100$

(c) $49x^2 - 1$

(d) $16x^2 - 25y^2$

(e) $-b^2 + 36a^2$

(f) $x^3 + 27$

(g) $x^3 - 8$

(h) $x^4 - 81$

(i) $a^6 - b^6$

3 Review of factoring

1. Factor the following polynomials as much as you can. If you think that a polynomial is irreducible state so and explain why.

(a) $7x^3 - 28x$

(b) $5x^2 - 9x$

(c) $x^2 + 1$

(d) $2x^4 - 7x^3 - 4x^2$

(e) $9x^2 - x^2y^2 + 4y^2 - 36$

(f) $x^4y^2z - x^4z^3 + 8xz^3 - 8xzy^2$

(g) $x^4 - 10x^2 + 9$

(h) $4x^4 - 25x^2 + 36$

(i) $x^4 - 81$

(j) $4x^2y^2 - 12xy^2 + 9y^2 + 108x - 36x^2 - 81$