MATH 123 **Factoring I**

Completely factor the following.

1. Polynomials with a negative middle term and a positive constant term.

(a) $x^2 - 4x + 3$
(b) $x^2 - 9x + 14$
(c) $x^2 - 5x + 6$
(d) $x^2 - 12x + 35$
(e) $x^2 - 11x + 24$
(f) $x^2 - 10x + 9$
(g) $x^2 - 11x + 28$
(h) $x^2 - 15x + 44$
(i) $x^2 - 17x + 30$
(j) $x^2 - 19x + 90$
(k) $x^2 - 15x + 26$
(l) $x^2 - 9x + 18$

2. Polynomials with a positive middle term and a positive constant term.

(a) $x^2 + 6x + 5$
(b) $x^2 + 16x + 63$
(c) $x^2 + 13x + 40$
(d) $x^2 + 10x + 16$
(e) $x^2 + 14x + 33$
(f) $x^2 + 11x + 18$
(g) $x^2 + 11x + 10$
(h) $x^2 + 5x + 6$
(i) $x^2 + 12x + 27$
(j) $x^2 + 16x + 28$
(k) $x^2 + 16x + 55$
(l) $x^2 + 11x + 28$

3. Polynomials with a negative constant term.

(a) $x^2 - 2x - 63$
(b) $x^2 + 2x - 3$
(c) $x^2 + 4x - 45$
(d) $x^2 - x - 30$
(e) $x^2 + 5x - 14$
(f) $x^2 - x - 12$
(g) $x^2 + x - 20$
(h) $x^2 - 3x - 10$
(i) $x^2 - x - 56$
(j) $x^2 + 9x - 22$
(k) $x^2 - 8x - 9$
(l) $x^2 + 6x - 7$
(m) $x^2 - 7x - 30$
(n) $x^2 + 4x - 32$
(o) $x^2 - 3x - 28$
(p) $x^2 + x - 30$
(q) $x^2 - 8x - 33$
(r) $x^2 + 2x - 63$

4. Polynomials with a zero middle term and a negative constant term.

(a) $x^2 - 1$
(b) $x^2 - 49$
(c) $x^2 - 25$
(d) $x^2 - 9$
(e) $x^2 - 144$
(f) $x^2 - 4$
(g) $x^2 - 36$
(h) $x^2 - 16$
(i) $x^2 - 64$
(j) $x^2 - 81$
(k) $x^2 - 5$
(l) $x^2 - 121$
(m) $x^2 - 100$
(n) $x^2 - 13$
(o) $x^2 - 8$
(p) $x^2 - 3$

5. Polynomials with a zero middle term and a negative fraction as the constant term.

(a) $x^2 - \frac{1}{4}$
(b) $x^2 - \frac{1}{9}$
(c) $x^2 - \frac{4}{9}$
(d) $x^2 - \frac{49}{81}$
(e) $x^2 - \frac{25}{4}$
(f) $x^2 - \frac{36}{49}$
(g) $x^2 - \frac{9}{16}$
(h) $x^2 - \frac{81}{25}$

6. Polynomials with a zero middle term, a negative constant term, and a leading coefficient greater than one.

(a) $4x^2 - 9$
(b) $25x^2 - 81$
(c) $49x^2 - 81$
(d) $16x^2 - 25$
(e) $4x^2 - 625$
(f) $121x^2 - 81$
(g) $169x^2 - 100$
(h) $576x^2 - 64$
(i) $36x^2 - 4$
(j) $9x^2 - 49$
(k) $64x^2 - 16$
(l) $9x^2 - 25$