COMMON FACTOR

(1) $x^2 + 4x$

(2) $x^2 - 6x$

(3) $x^2 + 9x$

(4) $x^2 - 10x$

(5) $7x - x^2$

(6) $12x + x^2$

(7) $2x - x^2$

(8) $15x - x^2$

(9) $a^2 - 5a$

(10) $c^2 + 8c$

(11) $g^2 - 14g$

(12) $11p - p^2$

(13) $2x^2 - 4x$

(14) $5x^2 + 10x$

(15) $3n^2 - 9n$

(16) $2g^2 + 8g$

(17) $5n^2 - 15n$ (18) $4d + 6d^2$

(19) $8n + 12n^2$ (20) $3f + 15f^2$

(21) $7a^2 - 14a$ (22) $2w - 12w^2$

(23) $7c + 21c^2$ (24) $5u^2 - 20u$

(25) $6x^2 - 9x$ (26) $4y - 14y^2$

(27) $10n^2 + 15n$ (28) $5p^2 - 35p$

(29) $8m - 12m^2$ (30) $10h + 12h^2$

DIFFERENCE OF TWO SQUARES

(1) $x^2 - 4$　　　　　　　　(2) $x^2 - 9$

(3) $x^2 - 25$　　　　　　　(4) $x^2 - 100$

(5) $64 - x^2$　　　　　　　(6) $49 - x^2$

(7) $1 - x^2$　　　　　　　　(8) $36 - x^2$

(9) $a^2 - 16$　　　　　　　(10) $c^2 - 81$

(11) $2g^2 - 18$　　　　　　(12) $4p^2 - 36$

(13) $2x^2 - 50$　　　　　　(14) $5x^2 - 5$

(15) $3n^2 - 75$

(16) $2g^2 - 200$

(17) $12 - 3n^2$

(18) $18 - 2p^2$

(19) $8 - 8u^2$

(20) $x^2 - y^2$

(21) $p^2 - q^2$

(22) $4p^2 - 49$

(23) $16 - 25c^2$

(24) $36 - 81w^2$

(25) $4x^2 - 9y^2$

(26) $9p^2 - 16q^2$

(27) $25m^2 - 81n^2$

(28) $2p^2 - 8q^2$

(29) $6x^2 - 6y^2$

(30) $45m^2 - 5n^2$

(31) $3c^2 - 27d^2$

(32) $6h^2 - 24k^2$

(33) $10a^2 - 40c^2$

(34) $63u^2 - 7v^2$

(35) $5x^2 - 80y^2$

TRINOMIALS

(1) $x^2 - 4x + 4$ (2) $x^2 + 11x + 30$

(3) $x^2 - 7x - 18$ (4) $x^2 + 4x - 12$

(5) $x^2 - 10x + 24$ (6) $x^2 - 3x - 18$

(7) $x^2 + 5x - 36$ (8) $x^2 - 2x - 24$

(9) $a^2 - 8a + 16$ (10) $x^2 - 4x - 32$

(11) $d^2 - 3d - 10$ (12) $g^2 + 5g - 50$

(13) $h^2 + 7h + 6$ (14) $n^2 + 5n - 6$

(15) $p^2 + p - 42$ (16) $u^2 - 3u - 70$

(17) $y^2 + y - 12$

(18) $n^2 - 6n + 8$

(19) $w^2 - 2w - 63$

(20) $x^2 - x - 2$

(21) $h^2 - 3h - 54$

(22) $d^2 + 2d - 35$

(23) $x^2 + 15x + 50$

(24) $y^2 - 2y - 99$

(25) $2x^2 - 5x - 3$

(26) $5p^2 - 17p + 6$

(27) $2x^2 + 9x - 5$

(28) $2x^2 - 7x - 15$

(29) $3u^2 - u - 4$

(30) $7a^2 + 9a + 2$

(31) $5m^2 - 6m + 1$

(32) $3c^2 + 17c - 6$

(33) $7p^2 + 5p - 2$ (34) $5h^2 - 12h + 4$

(35) $2x^2 - 5x - 7$ (36) $5x^2 - 6x - 8$

(37) $3x^2 - 2x - 21$ (38) $7x^2 + 6x - 16$

(39) $5u^2 + 6u - 27$ (40) $2p^2 + 7p - 22$

(41) $3x^2 + 25x + 8$ (42) $2x^2 - 13x + 6$

(43) $5x^2 - 4x - 12$ (44) $7m^2 + 6m - 16$

(45) $6x^2 - 7x + 2$ (46) $10a^2 + 3a - 4$

(47) $8x^2 - 10x + 2$ (48) $6x^2 + 3x - 3$

(49) $4c^2 + 5c - 6$ (50) $10 - 3a - a^2$

(51) $20 + 3x - 2x^2$ (52) $5 + 14x - 3x^2$

(53) $6n^2 + 23n - 4$ (54) $8x^2 - 10x + 3$

(55) $9p^2 - 3p - 6$

MIXED EXAMPLES

(1) $x^2 - 4x$

(2) $x^2 + 12x + 35$

(3) $a^2 - 36$

(4) $x^2 + 5x - 14$

(5) $x^2 - 12x + 32$

(6) $x^2 - 9x - 36$

(7) $5x^2 + 60$

(8) $x^2 - 8x - 20$

(9) $a^2 - 14a + 40$

(10) $x^2 + 10x - 24$

(11) $2d^2 + 9d - 5$

(12) $3g^2 - 48$

(13) $h^2 + 15h + 14$

(14) $n^2 + 6n - 16$

(15) $5p^2 - 2p - 7$

(16) $2u^2 - 18w^2$

(17) $y^2 + 7y - 18$

(18) $n^2 - 24n + 80$

(19) $w^2 - 3w - 54$

(20) $6x - 10x^2$

(21) $h^2 + 7h - 30$

(22) $d^2 - 9c^2$

(23) $x^2 + 19x + 60$

(24) $9y^2 - 18y$

(25) $3y^2 - 12$

(26) $5p^2 - 2p - 16$

(27) $2x^2 + 32x$

(28) $2x^2 - 32$

(29) $3u^2 + 5u - 8$

(30) $18x^2 - 50y^2$

(31) $6m^2 - 23m - 4$

(32) $3c + 18c^2$

(33) $7p^2 + 3p - 4$

(34) $5 - 20h^2$

(35) $2x^2 + 11x - 21$

(36) $30 - x - x^2$

(37) $3x^2 - 4x - 15$

(38) $2u - 14u^2$

(39) $5m^2 - 20n^2$

(40) $2p^2 + 13p - 24$

(41) $9x^2 - 12x$

(42) $2x^2 - 2x - 4$

(43) $5x^2 - 9x - 18$

(44) $7m^2 - 63n^2$

COMMON FACTOR

(1) $x^2 + 4x$
= $x(x + 4)$

(2) $x^2 - 6x$
= $x(x - 6)$

(3) $x^2 + 9x$
= $x(x + 9)$

(4) $x^2 - 10x$
= $x(x - 10)$

(5) $7x - x^2$
= $x(7 - x)$

(6) $12x + x^2$
= $x(12 + x)$

(7) $2x - x^2$
= $x(2 - x)$

(8) $15x - x^2$
= $x(15 - x)$

(9) $a^2 - 5a$
= $a(a - 5)$

(10) $c^2 + 8c$
= $c(c + 8)$

(11) $g^2 - 14g$
= $g(g - 14)$

(12) $11p - p^2$
= $p(11 - p)$

(13) $2x^2 - 4x$
= $2x(x - 4)$

(14) $5x^2 + 10x$
= $5x(x + 2)$

(15) $3n^2 - 9n$
= $3n(n - 3)$

(16) $2g^2 + 8g$
= $2g(g + 4)$

(17) $5n^2 - 15n$

= $5n(n - 3)$

(18) $4d + 6d^2$

= $2d(2 + 3d)$

(19) $8n + 12n^2$

= $4n(2 + 3n)$

(20) $3f + 15f^2$

= $3f(1 + 5f)$

(21) $7a^2 - 14a$

= $7a(a - 2)$

(22) $2w - 12w^2$

= $2w(1 - 6w)$

(23) $7c + 21c^2$

= $7c(1 + 3c)$

(24) $5u^2 - 20u$

= $5u(u - 4)$

(25) $6x^2 - 9x$

= $3x(2x - 3)$

(26) $4y - 14y^2$

= $2y(2 - 7y)$

(27) $10n^2 + 15n$

= $5n(2n + 3)$

(28) $5p^2 - 35p$

= $5p(p - 7)$

(29) $8m - 12m^2$

= $4m(2 - 3m)$

(30) $10h + 12h^2$

= $2h(5 + 6h)$

DIFFERENCE OF TWO SQUARES

(1) $x^2 - 4$
$= (x + 2)(x - 2)$

(2) $x^2 - 9$
$= (x + 3)(x - 3)$

(3) $x^2 - 25$
$= (x + 5)(x - 5)$

(4) $x^2 - 100$
$= (x + 10)(x - 10)$

(5) $64 - x^2$
$= (8 + x)(8 - x)$

(6) $49 - x^2$
$= (7 + x)(7 - x)$

(7) $1 - x^2$
$= (1 + x)(1 - x)$

(8) $36 - x^2$
$= (6 + x)(6 - x)$

(9) $a^2 - 16$
$= (a + 4)(a - 4)$

(10) $c^2 - 81$
$= (c + 9)(c - 9)$

(11) $2g^2 - 18$
$= 2(g^2 - 9)$
$= 2(g + 3)(g - 3)$

(12) $4p^2 - 36$
$= 4(p^2 - 9)$
$= 4(p + 3)(p - 3)$

(13) $2x^2 - 50$
$= 2(x^2 - 25)$
$= 2(x + 5)(x - 5)$

(14) $5x^2 - 5$
$= 5(x^2 - 1)$
$= 5(x + 1)(x - 1)$

(15) $3n^2 - 75$
$= 3(n^2 - 25)$
$= 3(n + 5)(n - 5)$

(16) $2g^2 - 200$
$= 2(g^2 - 100)$
$= 2(g + 10)(g - 10)$

(17) $12 - 3n^2$
$= 3(4 - n^2)$
$= 3(2 + n)(2 - n)$

(18) $18 - 2p^2$
$= 2(9 - p^2)$
$= 2(3 + p)(3 - p)$

(19) $8 - 8u^2$
$= 8(1 - u^2)$
$= 8(1 + u)(1 - u)$

(20) $x^2 - y^2$
$= (x + y)(x - y)$

(21) $p^2 - q^2$
$= (p + q)(p - q)$

(22) $4p^2 - 49$
$= (2p + 7)(2p - 7)$

(23) $16 - 25c^2$
$= (4 + 5c)(4 - 5c)$

(24) $36 - 81w^2$
$= 9(4 - 9w^2)$
$= 9(2 + 3w)(2 - 3w)$

(25) $4x^2 - 9y^2$
$= (2x + 3y)(2x - 3y)$

(26) $9p^2 - 16q^2$
$= (3p + 4q)(3p - 4q)$

(27) $25m^2 - 81n^2$
= $(5m + 9n)(5m - 9n)$

(28) $2p^2 - 8q^2$
= $2(p^2 - 4q^2)$
= $2(p + 2q)(p - 2q)$

(29) $6x^2 - 6y^2$
= $6(x^2 - y^2)$
= $6(x + y)(x - y)$

(30) $45m^2 - 5n^2$
= $5(9m^2 - n^2)$
= $5(3m + n)(3m - n)$

(31) $3c^2 - 27d^2$
= $3(c^2 - 9d^2)$
= $3(c + 3d)(c - 3d)$

(32) $6h^2 - 24k^2$
= $6(h^2 - 4k^2)$
= $6(h + 2k)(h - 2k)$

(33) $10a^2 - 40c^2$
= $10(a^2 - 4c^2)$
= $10(a + 2c)(a - 2c)$

(34) $63u^2 - 7v^2$
= $7(9u^2 - v^2)$
= $7(3u + v)(3u - v)$

(35) $5x^2 - 80y^2$
= $5(x^2 - 16y^2)$
= $5(x + 4y)(x - 4y)$

TRINOMIALS

(1) $x^2 - 4x + 4$
$= (x - 2)^2$

(2) $x^2 + 11x + 30$
$= (x + 5)(x + 6)$

(3) $x^2 - 7x - 18$
$= (x + 2)(x - 9)$

(4) $x^2 + 4x - 12$
$= (x + 6)(x - 2)$

(5) $x^2 - 10x + 24$
$= (x - 4)(x - 6)$

(6) $x^2 - 3x - 18$
$= (x + 3)(x - 6)$

(7) $x^2 + 5x - 36$
$= (x + 9)(x - 4)$

(8) $x^2 - 2x - 24$
$= (x - 6)(x + 4)$

(9) $a^2 - 8a + 16$
$= (a - 4)^2$

(10) $x^2 - 4x - 32$
$= (x + 4)(x - 8)$

(11) $d^2 - 3d - 10$
$= (d + 2)(d - 5)$

(12) $g^2 + 5g - 50$
$= (g + 10)(g - 5)$

(13) $h^2 + 7h + 6$
$= (h + 1)(h + 6)$

(14) $n^2 + 5n - 6$
$= (n + 6)(n - 1)$

(15) $p^2 + p - 42$
$= (p + 7)(p - 6)$

(16) $u^2 - 3u - 70$
$= (u - 10)(u + 7)$

(17) $y^2 + y - 12$
= $(y + 4)(y - 3)$

(18) $n^2 - 6n + 8$
= $(n - 2)(n - 4)$

(19) $w^2 - 2w - 63$
= $(w + 7)(w - 9)$

(20) $x^2 - x - 2$
= $(x + 1)(x - 2)$

(21) $h^2 - 3h - 54$
= $(h - 9)(h + 6)$

(22) $d^2 + 2d - 35$
= $(d + 7)(d - 5)$

(23) $x^2 + 15x + 50$
= $(x + 5)(x + 10)$

(24) $y^2 - 2y - 99$
= $(y - 11)(y + 9)$

(25) $2x^2 - 5x - 3$
= $(2x + 1)(x - 3)$

(26) $5p^2 - 17p + 6$
= $(5p - 2)(p - 3)$

(27) $2x^2 + 9x - 5$
= $(2x - 1)(x + 5)$

(28) $2x^2 - 7x - 15$
= $(2x + 3)(x - 5)$

(29) $3u^2 - u - 4$
= $(3u - 4)(u + 1)$

(30) $7a^2 + 9a + 2$
= $(7a + 2)(a + 1)$

(31) $5m^2 - 6m + 1$
= $(5m - 1)(m - 1)$

(32) $3c^2 + 17c - 6$
= $(3c - 1)(c + 6)$

(33) $7p^2 + 5p - 2$
$= (7p - 2)(p + 1)$

(34) $5h^2 - 12h + 4$
$= (5h - 2)(h - 2)$

(35) $2x^2 - 5x - 7$
$= (2x - 7)(x + 1)$

(36) $5x^2 - 6x - 8$
$= (5x + 4)(x - 2)$

(37) $3x^2 - 2x - 21$
$= (3x + 7)(x - 3)$

(38) $7x^2 + 6x - 16$
$= (7x - 8)(x + 2)$

(39) $5u^2 + 6u - 27$
$= (5u - 9)(u + 3)$

(40) $2p^2 + 7p - 22$
$= (2p + 11)(p - 2)$

(41) $3x^2 + 25x + 8$
$= (3x + 1)(x + 8)$

(42) $2x^2 - 13x + 6$
$= (2x - 1)(x - 6)$

(43) $5x^2 - 4x - 12$
$= (5x + 6)(x - 2)$

(44) $7m^2 + 6m - 16$
$= (7m - 8)(m + 2)$

(45) $6x^2 - 7x + 2$
$= (3x - 2)(2x - 1)$

(46) $10a^2 + 3a - 4$
$= (5a + 4)(2a - 1)$

(47) $8x^2 - 10x + 2$
$= 2(4x - 1)(x - 1)$

(48) $6x^2 + 3x - 3$
$= 3(2x - 1)(x + 1)$

(49) $4c^2 + 5c - 6$
$= (4c - 3)(c + 2)$

(50) $10 - 3a - a^2$
$= (2 - a)(5 + a)$

(51) $20 + 3x - 2x^2$
$= (4 - x)(5 + 2x)$

(52) $5 + 14x - 3x^2$
$= (5 - x)(1 + 3x)$

(53) $6n^2 + 23n - 4$
$= (6n - 1)(n + 4)$

(54) $8x^2 - 10x + 3$
$= (4x - 3)(2x - 1)$

(55) $9p^2 - 3p - 6$
$= 3(3p + 2)(p - 1)$

MIXED EXAMPLES

(1) $x^2 - 4x$

$= x(x - 4)$

(2) $x^2 + 12x + 35$

$= (x + 5)(x + 7)$

(3) $a^2 - 36$

$= (a - 6)(a + 6)$

(4) $x^2 + 5x - 14$

$= (x + 7)(\ - 2)$

(5) $x^2 - 12x + 32$

$= (x - 8)(x - 4)$

(6) $x^2 - 9x - 36$

$= (x + 3)(x - 12)$

(7) $5x^2 + 60$

$= 5(x^2 + 12)$

(8) $x^2 - 8x - 20$

$= (x - 10)(x + 2)$

(9) $a^2 - 14a + 40$

$= (a - 4)(a - 10)$

(10) $x^2 + 10x - 24$

$= (x + 12)(x - 2)$

(11) $2d^2 + 9d - 5$

$= (2d - 1)(d + 5)$

(12) $3g^2 - 48$

$= 3(g^2 - 16)$

$= 3(g + 4)(g - 4)$

(13) $h^2 + 15h + 14$
= $(h + 1)(h + 14)$

(14) $n^2 + 6n - 16$
= $(n + 8)(n - 2)$

(15) $5p^2 - 2p - 7$
= $(5p - 7)(p + 1)$

(16) $2u^2 - 18w^2$
= $2(u^2 - 9w^2)$
= $2(u + 3w)(u - 3w)$

(17) $y^2 + 7y - 18$
= $(y - 2)(y + 9)$

(18) $n^2 - 24n + 80$
= $(n - 4)(n - 20)$

(19) $w^2 - 3w - 54$
= $(w + 6)(w - 9)$

(20) $6x - 10x^2$
= $2x(3 - 5x)$

(21) $h^2 + 7h - 30$
= $(h - 3)(h + 10)$

(22) $d^2 - 9c^2$
= $(d + 3c)(d - 3c)$

(23) $x^2 + 19x + 60$
= $(x + 4)(x + 15)$

(24) $9y^2 - 18y$
= $9y(y - 2)$

(25) $3y^2 - 12$
  $= 3(y^2 - 4)$
  $= 3(y + 2)(y - 2)$

(26) $5p^2 - 2p - 16$
  $= (5p + 8)(p - 2)$

(27) $2x^2 + 32x$
  $= 2x(x + 16)$

(28) $2x^2 - 32$
  $= 2(x^2 - 16)$
  $= 2(x + 4)(x - 4)$

(29) $3u^2 + 5u - 8$
  $= (3u + 8)(u - 1)$

(30) $18x^2 - 50y^2$
  $= 2(9x^2 - 25y^2)$
  $= 2(3x + 5y)(3x - 5y)$

(31) $6m^2 - 23m - 4$
  $= (6m + 1)(m - 4)$

(32) $3c + 18c^2$
  $= 3c(1 + 6c)$

(33) $7p^2 + 3p - 4$
  $= (7p - 4)(p + 1)$

(34) $5 - 20h^2$
  $= 5(1 - 4h^2)$
  $= 5(1 + 2h)(1 - 2h)$

(35) $2x^2 + 11x - 21$
  $= (2x - 3)(x + 7)$

(36) $30 - x - x^2$
  $= (5 - x)(6 + x)$

(37) $3x^2 - 4x - 15$
= $(3x + 5)(x - 3)$

(38) $2u - 14u^2$
= $2u(1 - 7u)$

(39) $5m^2 - 20n^2$
= $5(m^2 - 4n^2)$
= $5(m + 2n)(m - 2n)$

(40) $2p^2 + 13p - 24$
= $(2p - 3)(p + 8)$

(41) $9x^2 - 12x$
= $3x(3x - 4)$

(42) $2x^2 - 2x - 4$
= $2(x^2 - x - 2)$
= $2(x + 1)(x - 2)$

(43) $5x^2 - 9x - 18$
= $(5x + 6)(x - 3)$

(44) $7m^2 - 63n^2$
= $7(m^2 - 9n^2)$
= $7(m + 3n)(m - 3n)$