$(7+x)(7-x)$

$49 - 7x + 7x - x^2$

$-x^2 + 49$

$8r^2(r^2-2)$

$8r^4 - 16r^2$

$(-8y^2 - 9y) - (-8y^3 + 9y^2 - 5y)$

$-8y^2 - 9y + 8y^3 - 9y^2 + 5y$

$-17y^2 - 4y + 8y^3$

$\boxed{8y^3 - 17y^2 - 4y}$

$(-1+2p)(3-4p)$

$-3 + 4p + 6p - 8p^2$

$\boxed{-8p^2 + 10p - 3}$

$(-2k^3 - 7k^2 + 5k) + (6k^2 + 3k)$

$\boxed{-2k^3 - k^2 + 8k}$

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$x^2 - 3x - 10$

$(x-5)(x+2)$

$x^2 + 2x - 5x - 10$

$x^2 - 3x - 10$

$x^2 + 7x + 10$

$(x+2)(x+5)$

$x^2 + 9x + 20$

$(x+4)(x+5)$

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

$x^2 - x - 6$

$(x-3)(x+2)$

$x^2 - 8x - 9 = (x-9)(x+1)$

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

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

$x^2 + 5xy + 6y^2$

$(x+3y)(x+2y)$

$x^2 + 2xy + 3xy + 6y^2$

$x^2 + 5xy + 6y^2$

$x^4 - 5x^2 + 6$

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

$x^4 - 2x^2 - 3x^2 + 6$

$x^4 - 5x^2 + 6$

$x^2 - 14x + 40$

$(x-10)(x-4)$

$x^2 - x - 12$

$(x-4)(x+3)$

$x^2 - x - 42 = (x-7)(x+6)$

$9x^2 + 6x + 12x + 8$

$(9x^2 + 6x) + (12x + 8)$

$3x(3x + 2) + 4(3x + 2)$

$\boxed{(3x + 4)(3x + 2)}$

$(5x^2 + 10x) + (2x + 4)$

$5x(x + 2) + 2(x + 2)$

$\boxed{(x + 2)(5x + 2)}$

$8x^2 + 6x + 4x + 3$

$(6x + 3) + (8x^2 + 4x)$

$3(2x + 1) + 4x(2x + 1)$

$\boxed{(4x + 3)(2x + 1)}$

$2x^2 - 3x - 4x + 6$

$(6 - 3x) + (2x^2 - 4x)$

$-3(x-2) + 2x(x-2)$

$\boxed{(2x-3)(x-2)}$

$3x^2 + 6x - x - 2$

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

$x(3x-1) + 2(3x-1)$

$\boxed{(3x-1)(x+2)}$

$3x^2 + 3x - 10x - 10$

$3x(x+1) - 10(x+1)$

$\boxed{(3x-10)(x+1)}$

$(2x^3 + 10x^2) + (3x + 15)$

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

$\boxed{(2x^2+3)(x+5)}$

$3x^2 + 10x + 8$

$(3x^2 + 6x) + (4x + 8)$

$3x(x + 2) + 4(x + 2)$

$\boxed{(3x + 4)(x + 2)}$

$4x^2 + 16x + 15$

$4x^2 + 6x + 10x + 15$

$2x(2x + 3) + 5(2x + 3)$

$(2x + 5)(2x + 3)$

$2x^2 - 3x - 9$

$2 \cdot -9 = -18$

$x + y = -3$

$-6 \cdot 3 = -18$

$-6 + 3 = -3$

$(2x^2 - 6x) + (3x - 9)$

$2x(x - 3) + 3(x - 3)$

$\boxed{(2x + 3)(x - 3)}$

$3x^2 - 2x - 5$

$3 \cdot -5 = -15$

$x + y = -2$

$-5 + 3 = -2$

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

$3x(x+1) - 5(x+1)$

$\boxed{(3x-5)(x+1)}$

$6x^2 - 13x + 6$

$6 \cdot 6 = 36$

$x + y = -13$

$-9 - 4 = -13$

$6x^2 - 9x - 4x + 6$

$3x(2x-3) - 2(2x-3)$

$\boxed{(3x-2)(2x-3)}$

$12x^2 + 17x + 6$

$12 \cdot 6 = 72$

$x + y = 17$

$8 + 9 = 17$

$12x^2 + 8x + 9x + 6$

$4x(3x+2) + 3(3x+2)$

$\boxed{(4x+3)(3x+2)}$

$44k^5 - 66k^4 + 77k^3$

$11k^3(4k^2 - 6k + 7)$

$30k^3 + 6k^2$

$6k^2(5k + 1)$

$15x^2 - 4x - 4$

$15 \cdot -4 = -60$

$x + y = -4$

$-10 + 6 = -4$

$15x^2 - 10x + 6x - 4$

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

$\boxed{(5x + 2)(3x - 2)}$

$8x^2 - 18x - 5$

$8 \cdot -5 = -40$

$x + y = -18$

$-20 + 2 = -18$

$8x^2 + 2x - 20x - 5$

$2x(4x + 1) - 5(4x + 1)$

$(2x - 5)(4x + 1)$

$(a+b)^2 = a^2 + 2ab + b^2$

$(a-b)^2 = a^2 - 2ab + b^2$

$x^2 + 6x + 9$

$(x+3)(x+3)$ or $(x+3)^2$

$x^2 - 6x + 9$

$(x-3)(x-3)$ or $(x-3)^2$

$x^2 + 14x + 49$

$(x+7)(x+7)$ or $(x+7)^2$

$9x^2 + 30x + 25$

$9 \cdot 25 = 225$

$15 + 15 = 30$

$(9x^2 + 15x) + (15x + 25)$

$3x(3x+5) + 5(3x+5)$

$(3x+5)(3x+5)$

$(3x+5)^2$

$4x^2 - 20x + 25$

$4 \cdot 25 = 100$

$-10 - 10 = -20$

$4x^2 - 10x - 10x + 25$

$(4x^2 - 10x) + (-10x + 25)$

$2x(2x-5) - 5(2x-5)$

$(2x-5)(2x-5)$

$(2x-5)^2$

$x^4 + 2x^2 + 1$

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

$x^4 + x^2 + x^2 + 1$

$x^4 + 2x^2 + 1$

$\boxed{(x^2+1)^2}$

$9x^2 + 24xy + 16y^2$

$9 \cdot 16 = 144$

$12 + 12 = 24$

$(9x^2 + 12xy) + (12xy + 16y^2)$

$3x(3x+4y) + 4y(3x+4y)$

$(3x+4y)(3x+4y)$

$\boxed{(3x+4y)^2}$

$(Ax+B)^2 = (Ax+B)(Ax+B)$

$(Ax)^2 + ABx + ABx + B^2$

$25x^2 + 20x + 4$

$(5x)^2 + 2 \cdot 5 \cdot 2x + 2^2 = (5x+2)^2$

$16x^3 + 24x^2 + 9x$

$x(4x^2 + 24x + 9)$

$x((4x)^2 + 2 \cdot 4 \cdot 3x + 3^2)$

$\boxed{x(4x+3)^2}$

$(Ax+B)^2 = (Ax)^2 + 2ABx + B^2$

$-4t^2 - 12t - 9$

$4t^2 + 12t + 9$

$(2t)^2 + 2 \cdot 2 \cdot 3x + 3^2$

$(2x+3)^2$

$4x^2 + 12x + 9$

$(2x)^2 \qquad 3^2$

$(2x+3)^2$

$(2x+3)(2x+3)$

$2x+3$

$4x^2 - 9$

$(2x+3)(2x-3)$

$2x^2 + 4x - 16$

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

$2(x+4)(x-2)$

$72x^2 - 2$

$2(36x^2 - 1)$

$2(6x+1)(6x-1)$

$3x^2 - 60x + 300$

$3(x^2 - 20x + 100)$

$3(x-10)(x-10)$

$3(x-10)^2$

$5x^2 + 5x + 15$

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

$8x^2 - 12x - 8$

$-8 \cdot 8 = -64$

$x + y = -12$

$-16 + 4 = -12$

$(8x^2 - 16x) + (4x - 8)$

$8x(x-2) + 4(x-2)$

$(8x+4)(x-2)$

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

$8x^2 - 12x - 8$

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

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

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

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

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

$56 - 18x + x^2$

$x^2 - 18x + 56$

$(x-14)(x-4)$

$3x^2 + 27$

$3(x^2+9)$

$(x+5)(x+7) = 0$

$x+5=0 \quad x+7=0$

$x=-5 \quad x=-7$

$(2x-1)(4x-3) = 0$

$2x-1=0 \quad 4x-3=0$

$+1 \; +1 \quad +3 \; +3$

$\frac{2x}{2} = \frac{1}{2} \quad \frac{4x}{4} = \frac{3}{4}$

$x = \frac{1}{2} \quad x = \frac{3}{4}$

$x^2 + 5x = 0$

$x(x+5) = 0$

$x+5=0$

$-5 \; -5$

$x=-5 \quad x=0$

$4x^2 + 4x + 1 = 0$

$4 \cdot 1 = 4$

$x+y=4$

$2+2=4$

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

$2x(2x+1)+1(2x+1)$

$(2x+1)(2x+1)$

$x^2 - 11x + 28 = 0$

$(x-4)(x-7) = 0$

$x=4, x=7$

$2x + x = 0$

$+1 \; -1$

$\frac{2x}{2} = \frac{-1}{2}$

$x = -\frac{1}{2}$

$3x^2 + 11x - 4 = 0$

$3 \cdot -4 = -12$

$x + y = 11$

$12 - 1 = 11$

$(3x^2 + 12x)(-1x - 4) = 0$

$3x(x+4) - 1(x+4) = 0$

$(3x-1)(x+4)$

$3x - 1 = 0$ $\quad x + 4 = 0$

$+1 \quad +1 \qquad x = -4$

$\frac{3x}{3} = \frac{1}{3}$

$x = \frac{1}{3}$ $\qquad x = -4$

$2x^2 - 3x - 20 = x^2 + 34$

$-x^2 \qquad\qquad -x^2$

$x^2 - 3x - 20 = 34$

$-34 \quad -34$

$x^2 - 3x - 54$

$(x-9)(x+6)$

$x = 9, \quad x = -6$

$3x^2 + 33x + 30 = 0$

$3(x^2 + 11x + 10) = 0$

$3(x+10)(x+1) = 0$

$x = -10, \quad x = -1$

$3x^2 - 9x - 20 = x^2 + 5x + 16$

$-x^2 - 5x - 16 \qquad -x^2 - 5x - 16$

$2x^2 - 14x - 36$

$2(x^2 - 7x - 18)$

$2(x-9)(x+2)$

$x = 9, \quad x = -2$

$x^2 + 14x + 49 = 0$

$(x+7)(x+7)$

$(x+7)^2$

$\boxed{x = -7}$

$3x^2 + 3x - 90 = 0$

$3(x^2 + x - 30) = 0$

$3(x+6)(x-5) = 0$

$\boxed{x = -6,\ x = 5}$

$(x^2+3)^2 = 4x^2 + 12$

$(x^2+3)(x^2+3) = 4x^2 + 12$

$x^4 + 3x^2 + 3x^2 + 9 = 4x^2 + 12$

$x^4 + 6x^2 + 9 = 4x^2 + 12$

$-4x^2 - 12 \quad -4x \quad -12$

$x^4 + 2x^2 - 3 = 0$

$1 \cdot -3 = -3$

$x + y = 2$

$3 - 1 = 2$

$(x^4 + 3x^2) + (x^2 - 3) = 0$

$x^2(x^2+3) + 1(x^2-3) = 0$

$(x^2+1)(x^2+3)(x^2-3) = 0$

$4x^2 - 1 = 0$

$(2x+1)(2x-1)$

$4x^2 - 2x + 2x - 1$

$4x^2 - 1 = 0$

$4 - 12x + 9x^2$

$9x^2 - 12x + 4$

$9 \cdot 4 = 36$

$x + y = -12$

$-6 - 6 = -12$

$9x^2 - 6x - 6x + 4$

$(9x^2 - 6x)(-6x + 4)$

$3x(3x-2) - 2(3x-2)$

$(3x-2)(3x-2)$

$(3x-2)^2$

$5x^2 + 60x + 180 = 0$

$5(x^2 + 12x + 36) = 0$

$5(x+6)(x+6) = 0$

$x = -6$

$3x^2 - 147$

$3(x^2 - 49)$

$3(x+7)(x-7)$

$3(x^2 - 7x + 7x - 49)$

$3(x^2 - 49)$

$4x^2 + 72x + 320 = 0$

$4(x^2 + 18x + 80) = 0$

$4(x+10)(x+8) = 0$

$x = -10, x = -8$

$6a^3 + 7a^2 - 5a^3 - 9a^2 - a$

$\boxed{a^3 - 2a^2 - a}$

$(x+3)(x-3)$

$x^2 - 3x + 3x - 9$

$\boxed{x^2 - 9}$

$25x^2 - 16$

$\boxed{(5x-4)(5x+4)}$

$25x^2 + 20x - 20x - 16$

$25x^2 - 16$

$2x^2 + 7x + 3$

$2 \cdot 3 = 6$

$x + y = 7$

$6 + 1 = 7$

$6 \cdot 1 = 6$

$(2x^2 + 6x) + (1x + 3)$

$2x(x+3) + 1(x+3)$

$\boxed{(2x+1)(x+3)}$

$-w^3 + 8w^2 - 3w + 0$

$0 - 8w^2 + w + 3$

$-w^3 + 0 - 2w + 3$

$-w^3 - 2w + 3$

$6x^2 + 60x + 150 = 0$

$6(x^2 + 10x + 25) = 0$

$6(x+5)(x+5) = 0$

$\boxed{x = -5}$

$3x^2 + 30x + 75$

$3(x^2 + 10x + 25)$

$3(x+5)(x+5)$

$\boxed{3(x+5)^2}$

$20y^6 - 15y^4 + 40y^2$

$5y^2(4y^4 - 3y^2 + 8)$

$3x(x^2 - 5x + 6)$

$\boxed{3x^3 - 15x^2 + 18x}$

$(9 + q)(8 - q)$

$72 - 9q + 8q - q^2$

$\boxed{-q^2 - q + 72}$