Factoring Puzzle

Key

Alex thought he was doing Jesse a favor by sorting all the factoring pieces by number. Alex did not know Jesse had created "compound factors" that made two word phrases (like Dog House or House Cat) that all matched up when the trinomials were factored properly. Now they are all mixed up. Can you help Alex and Jesse sort out their factoring puzzle?

1. Cut out the factoring pieces.
2. Use the factoring pieces to factor each trinomial properly.
3. It might get tricky but if all the "compound factors" make sense, you win!

x^2-x-6 (−6: −3, 2; −3 + 2 = −1)

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

x^2-2x-8 (−8: −4, 2; −4 + 2 = −2)

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

x^2+2x-3 (−3: 3, −1; 3 − 1 = 2)

$(x+3)$ SQUARE	$(x-1)$ DANCE

$x^2+3x-10$ (−10: 5, −3; 5 − 3 = 3)

$(x+5)$ FIRST	$(x-3)$ DOWN

x^2+2x+1 (1: 1, 1; 1 + 1 = 2)

$(x+1)$ DOG	$(x+1)$ BONE

$x^2+2x-15$ (−15: 5, −3; 5 − 3 = 2)

$(x-3)$ HAT	$(x+5)$ TRICK

$x^2-7x+10$ (10: −5, −2; −5 − 2 = −7)

$(x-2)$ SNAKE	$(x-5)$ PIT

x^2+5x-6 (−6: 6, −1; 6 − 1 = 5)

$(x+6)$ CHECK	$(x-1)$ MATE

$x^2+16x+63$ (63: 9, 7; 9 + 7 = 16)

$(x+9)$ GAME	$(x+7)$ SHOW

x^2-x-56 (−56: −8, 7; −8 + 7 = −1)

$(x-8)$ BOAT	$(x+7)$ DOCK

$x^2-4x-12$ (−12: −6, 2; −6 + 2 = −4)

$(x-6)$ FRENCH	$(x+2)$ FRY

x^2+x-12 (−12: −3, 4; −3 + 4 = 1)

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

$x^2+13x+42$ (42: 6, 7; 6 + 7 = 13)

$(x+6)$ HALL	$(x+7)$ PASS

$x^2+6x-16$ (−16: 8, −2; 8 − 2 = 6)

$(x-2)$ CHERRY	$(x+8)$ PIE

$x^2+5x-36$ (−36: 9, −4; 9 − 4 = 5)

$(x+9)$ FASHION	$(x-4)$ TIE

$2x^2-9x+4$ (8: −8, −1; −8 − 1 = −9)

$(2x-1)$ BROOM	$(x-4)$ STICK

$2x^2-8x-1x+4$

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

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

$2x^2-x-1$ (−2: −2, 1; −2 + 1 = −1)

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

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

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

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

$6x^2-x-1$ (−6: −3, 2; −3 + 2 = −1)

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

$6x^2-3x+2x-1$

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

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

Factoring Pieces

[x-8] BOAT	[x-6] FRENCH	[x-5] PIT	[x-4] BALL	[x-4] STICK	[x-4] TIE	[x-3] HOUSE
[x-3] DOWN	[x-3] TEN	[x-2] SNAKE	[x-2] CHERRY	[x-2] HAT	[x-1] MATE	[x-1] SHIP
[x+1] DOG	[x+1] BONE	[x-1] DANCE	[x+2] TOP	[x+2] BASE	[x+2] FRY	[x+3] SQUARE
[x+4] CAT	[x+5] FIRST	[x+5] TRICK	[x+6] CHECK	[x+6] HALL	[x+7] DOCK	[x+7] PASS
[x+7] SHOW	[x+8] PIE	[x+9] FASHION	[x+9] GAME	[2x-1] WELL	[2x-1] BROOM	[2x+1] BATTLE
			[3x+1] DONE			