(1) a) $(x+5)(x-4) = x^2-15$

b) $(8-x)(x+7) = 52-x^2$

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

d) $(x+6)(x+2) = x^2+7x+15$

e) $(x-4)(x-7) = x^2-10x+30$

f) $(x-1)(x+6) = x^2+4x+4$

(2) a) $(x+3)(x+5)-(x+1)(x+6)-8 = 0$

b) $(x-8)(x+14)+1 = (x+3)(x+2)$

c) $(x+10)(x-7)-(x+1)(x+3) = 2$

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

e) $(x+1)(x-4) = x^2+x+6$

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

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

b) $(x+2)^2-(x-4)^2 = 11x-8$

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

d) $(x^2-4)+(2x-1)^2+(3x+5) = 5x^2$

e) $(z-4)^2-(z+8)^2+23z+45 = 0$

f) $(a+5)^2-(a+6)^2+a+14 = 0$

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

b) $(z+4)^2-(z+2)^2+2z = (z+5)^2-(z+3)^2$

c) $2(y-1)^2-(y+1)^2 = (y-7)^2$

d) $(4x+3)^2+(3x+5)^2 = (5x+6)^2+10$

(5) a) $(2z-3)^2+(6z+1)^2 = (4z-2)^2+2(12z^2-13)$

b) $(2y+1)^2-(3y-2)^2-3 = (y-3)^2-(4y-1)^2+10y^2$

c) $(x+5)(x-5)+(x-2)^2 = (x+5)^2+(x^2+52)$

d) $9z(z+5)-(3z+2)(3z-2) = (2z-7)^2-(2z+5)(2z-5)+3$