

## Worksheet #11 Section 3.3 — Foil Product Problems

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Multiply out each of the following and simplify.

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

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

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

(4)  $(y - 3)(y - 2)$

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

(6)  $(a + 7)(a + 1)$

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

(8)  $(x - 9)(x - 11)$

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

(10)  $(2s - 3)^2$

(11)  $(2x + 1)(x - 2)$

(12)  $(x - 8)(x + 8)$

(13)  $(2y + 1)(y - 4)$

(14)  $(3z + 2)(3z - 2)$

(15)  $(2b - 1)^2$

(16)  $(5x - 4)(4x + 1)$

(17)  $(7z - 7)(z + 1)$

(18)  $(x - 1)^2$

(19)  $(6a + 2)(5a - 4)$

(20)  $(3a + 3)(a + 1)$

(21)  $(2a + b)(2a - b)$

(22)  $(3x + a)(x - 2)$

(23)  $(x - 4y)^2$

(24)  $(a + 12)(a - 5)$

(25)  $(x + y)(2x - y)$

(26)  $(3a - b)(2a + b)$

(27)  $(2x - a)^2$

(28)  $(4 - x)(x + 3)$

(29)  $(2 - 4x)(5 - x)$

(30)  $(4 - a)^2$

(31)  $(3t - 4)(t + 1)$

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

(33)  $(2a - b)(2a + b)$

(34)  $(2 - x)(3 - 2x)$

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

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

(37)  $(2t - 3)^2$

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

(39)  $(a^3 + 3)(a^3 + 2)$

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

(41)  $(2x^2 + y^2)^2$

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

(43)  $(2 - 4s)(3 - s)$

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

(45)  $(3 - 2x)^2$

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

(47)  $(2y - 2)(y + 4)$

(48)  $(2a - b)(a + b)$

(49)  $(2x - 4)(3x + 6)$

(50)  $(5z - 2)(5z + 2)$

(51)  $(3x^2 - y)(3x^2 + y)$

(52)  $(5a - 4)(11a + 5)$

(53)  $(5 - x)(x + 5)$

(54)  $(x + 2)(x - 7)$

(55)  $(x - 2)^2$

(56)  $(a + b)^2$

(57)  $(2x^2 + 1)(3x^2 + 5)$

$$(58) (x^2 - 6)(x^2 + 1)$$

$$(59) (a - 2)(a - 1)$$

$$(60) (t^2 - 3)^2$$

$$(61) (x + y)^2$$

$$(62) (2z + b)^2$$

$$(63) (t - 8)(3t + 1)$$

$$(64) (5t - 3)^2$$

$$(65) (7t - 1)(7t + 1)$$

$$(66) (2p + 3)(p - 5)$$

$$(67) (2x - 3)(y + 4)$$

$$(68) (x - 3)(y + 3)$$

$$(69) (4b - 5)(2b - 4)$$

$$(70) (2x - 3)(y + 2)$$

$$(71) (3a^2 + 3)(2a^2 + 1)$$

$$(72) (x - 1)^2 - (x + 1)^2$$

$$(73) (x^2 - 2)(x + 3)$$

$$(74) (x + 3)^2 + (x - 3)^2$$

$$(75) (x - y)(x + 2y)$$

$$(76) (2x + y)^2$$

$$(77) (2x - 3y)(3x + 4y)$$

$$(78) (3a - 5)(2a + 5)$$

$$(79) (z^2 - 2)(2z^2 + 3)$$

$$(80) (3xy + 1)(2xy - 3)$$

$$(81) (s + 4)^2$$

Answers: (1)  $x^2 + 3x + 2$  (2)  $x^2 + 7x + 12$  (3)  $x^2 + 2x - 8$  (4)  $y^2 - 5y + 6$  (5)  $x^2 + 7x + 10$   
(6)  $a^2 + 8a + 7$  (7)  $x^2 - 7x + 10$  (8)  $x^2 - 20x + 99$  (9)  $x^2 - 4x + 4$  (10)  $4s^2 - 12s + 9$   
(11)  $2x^2 - 3x - 2$  (12)  $x^2 - 64$  (13)  $2y^2 - 7y - 4$  (14)  $9z^2 - 4$  (15)  $4b^2 - 4b + 1$   
(16)  $20x^2 - 11x - 4$  (17)  $7z^2 - 7$  (18)  $x^2 - 2x + 1$  (19)  $30a^2 - 14a - 8$  (20)  $3a^2 + 6a + 3$   
(21)  $-b^2 + 4a^2$  (22)  $3x^2 + ax - 6x - 2a$  (23)  $16y^2 - 8xy + x^2$  (24)  $a^2 + 7a - 60$   
(25)  $-y^2 + xy + 2x^2$  (26)  $-b^2 + ab + 6a^2$  (27)  $4x^2 - 4ax + a^2$  (28)  $-x^2 + x + 12$   
(29)  $4x^2 - 22x + 10$  (30)  $a^2 - 8a + 16$  (31)  $3t^2 - t - 4$  (32)  $x^4 + 4x^2 + 3$  (33)  $-b^2 + 4a^2$   
(34)  $2x^2 - 7x + 6$  (35)  $x^4 - 8x^2 + 16$  (36)  $-x^2 + x + 6$  (37)  $4t^2 - 12t + 9$  (38)  $3y^4 + 4x^2y^2 + x^4$   
(39)  $a^6 + 5a^3 + 6$  (40)  $x^2 - x - 6$  (41)  $y^4 + 4x^2y^2 + 4x^4$  (42)  $x^2 - 2x - 3$  (43)  $4s^2 - 14s + 6$   
(44)  $x^2 - x - 6$  (45)  $4x^2 - 12x + 9$  (46)  $3x^2 + 7x + 2$  (47)  $2y^2 + 6y - 8$  (48)  $-b^2 + ab + 2a^2$   
(49)  $6x^2 - 24$  (50)  $25z^2 - 4$  (51)  $-y^2 + 9x^4$  (52)  $55a^2 - 19a - 20$  (53)  $-x^2 + 25$   
(54)  $x^2 - 5x - 14$  (55)  $x^2 - 4x + 4$  (56)  $b^2 + 2ab + a^2$  (57)  $6x^4 + 13x^2 + 5$  (58)  $x^4 - 5x^2 - 6$   
(59)  $a^2 - 3a + 2$  (60)  $t^4 - 6t^2 + 9$  (61)  $y^2 + 2xy + x^2$  (62)  $4z^2 + 4bz + b^2$  (63)  $3t^2 - 23t - 8$   
(64)  $25t^2 - 30t + 9$  (65)  $49t^2 - 1$  (66)  $2p^2 - 7p - 15$  (67)  $2xy - 3y + 8x - 12$  (68)  $xy - 3y + 3x - 9$   
(69)  $8b^2 - 26b + 20$  (70)  $2xy - 3y + 4x - 6$  (71)  $6a^4 + 9a^2 + 3$  (72)  $-4x$  (73)  $x^3 + 3x^2 - 2x - 6$   
(74)  $2x^2 + 18$  (75)  $-2y^2 + xy + x^2$  (76)  $y^2 + 4xy + 4x^2$  (77)  $-12y^2 - xy + 6x^2$   
(78)  $6a^2 + 5a - 25$  (79)  $2z^4 - z^2 - 6$  (80)  $6x^2y^2 - 7xy - 3$  (81)  $s^2 + 8s + 16$