

## Factoring Problems — General Foil Factoring

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Completely factor each of the following. Write complete and correct steps for all problems. Do not use a calculator. Work the odd problems, if you have any trouble whatsoever also do the even problems. The last 12 problems are review problems.

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|----------------------------|---------------------------|---------------------------|
| (1) $2x^2 + 5x + 2$        | (2) $3y^2 + 11y + 6$      | (3) $3a^2 + 23a - 8$      |
| (4) $2b^2 + 7b - 4$        | (5) $4y^2 + 4y + 1$       | (6) $9x^2 + 6x + 1$       |
| (7) $2x^2 - 13x + 15$      | (8) $2y^2 - 11y + 12$     | (9) $x^2 + 15x + 36$      |
| (10) $y^2 + 14y + 48$      | (11) $6x^2 - 13x + 6$     | (12) $12y^2 - 25y + 12$   |
| (13) $-x^2 - 6x - 8$       | (14) $-y^2 - 8y - 15$     | (15) $6x^2 - x - 15$      |
| (16) $6a^2 - 17a - 14$     | (17) $x^4 - 5x^2 + 6$     | (18) $z^4 - 11z^2 + 30$   |
| (19) $3z^2 - 2z + 3$       | (20) $3z + 4a^2 - 2$      | (21) $4x^2 - 20x + 25$    |
| (22) $9y^2 - 24y + 16$     | (23) $5x^2 + x - 6$       | (24) $7y^2 - 17y + 6$     |
| (25) $6x^4 + 7x^2 + 2$     | (26) $6a^4 + 11a^2 + 3$   | (27) $x^4 - 3x^2 - 18$    |
| (28) $a^4 - 8a^2 + 16$     | (29) $-28y^2 - 3xy + x^2$ | (30) $-18z^2 - 3yz + y^2$ |
| (31) $4a^2 + 18a - 36$     | (32) $6y^2 - 27y - 54$    | (33) $4y^2 - 12y + 9$     |
| (34) $9x^2 - 12x + 4$      | (35) $15z^2 + 8z + 1$     | (36) $21x^2 + 10x + 1$    |
| (37) $15s^2 + 111s - 72$   | (38) $18t^2 + 100t - 48$  | (39) $10ax^2 + 9ax + 2a$  |
| (40) $24a^2b + 25ab + 6b$  | (41) $16x^2 + 4x - 2$     | (42) $24y^2 + 42y - 12$   |
| (43) $x^2 + 7x - 7$        | (44) $4x + a^2 + 5$       | (45) $27a^2 + 48a - 64$   |
| (46) $5x^2 + 28x - 49$     | (47) $-72b^2 + 8a^2$      | (48) $-98y^2 + 2x^2$      |
| (49) $ax^2 + 3ax + 2a$     | (50) $by^2 + 6by + 9b$    | (51) $-20x^2 - 38x - 12$  |
| (52) $-40y^2 - 170y - 175$ | (53) $x^2 + 4$            | (54) $y^2 + 16$           |

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The following are review problems. Work all of them.

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|---------------------------|------------------------------|---------------------------|
| (55) $15x^2 + 26x + 8$    | (56) $10y^2 - 29y - 21$      | (57) $3x^2 - 18x - 216$   |
| (58) $16as^2 + 18as - 9a$ | (59) $-15t^2 + 17st + 18s^2$ | (60) $2x^2 + 5x - 20$     |
| (61) $9x^4 - 30x^2 + 25$  | (62) $20ax^2 - 58ax - 42a$   | (63) $-90x^2 - 204x - 96$ |
| (64) $8z^2 + 6z - 9$      | (65) $x^4 - 9x^2 - 36$       | (66) $10a^2 + a - 21$     |

Answers: (1)  $(2x + 1)(x + 2)$  (2)  $(3y + 2)(y + 3)$  (3)  $(3a - 1)(a + 8)$  (4)  $(2b - 1)(b + 4)$   
 (5)  $(2y + 1)^2$  (6)  $(3x + 1)^2$  (7)  $(2x - 3)(x - 5)$  (8)  $(y - 4)(2y - 3)$  (9)  $(x + 12)(x + 3)$   
 (10)  $(y + 6)(y + 8)$  (11)  $(2x - 3)(3x - 2)$  (12)  $(3y - 4)(4y - 3)$  (13)  $-(x + 2)(x + 4)$   
 (14)  $-(y + 3)(y + 5)$  (15)  $(3x - 5)(2x + 3)$  (16)  $(2a - 7)(3a + 2)$  (17)  $(x^2 - 3)(x^2 - 2)$   
 (18)  $(z^2 - 6)(z^2 - 5)$  (19) Does Not Factor (20) Does Not Factor (21)  $(2x - 5)^2$   
 (22)  $(3y - 4)^2$  (23)  $(x - 1)(5x + 6)$  (24)  $(y - 2)(7y - 3)$  (25)  $(2x^2 + 1)(3x^2 + 2)$   
 (26)  $(2a^2 + 3)(3a^2 + 1)$  (27)  $(x^2 + 3)(x^2 - 6)$  (28)  $(a^2 - 4)(a^2 - 4)$  (29)  $(x - 7y)(x + 4y)$   
 (30)  $(y - 6z)(y + 3z)$  (31)  $2(a + 6)(2a - 3)$  (32)  $3(y - 6)(2y + 3)$  (33)  $(2y - 3)^2$   
 (34)  $(3x - 2)^2$  (35)  $(3z + 1)(5z + 1)$  (36)  $(7x + 1)(3x + 1)$  (37)  $3(5s - 3)(s + 8)$   
 (38)  $2(9t - 4)(t + 6)$  (39)  $a(2x + 1)(5x + 2)$  (40)  $b(3a + 2)(8a + 3)$  (41)  $2(4x - 1)(2x + 1)$   
 (42)  $3(8y - 2)(y + 2)$  (43) Does Not Factor (44) Does Not Factor (45)  $(9a - 8)(3a + 8)$   
 (46)  $(5x - 7)(x + 7)$  (47)  $8(a - 3b)(a + 3b)$  (48)  $2(x - 7y)(x + 7y)$  (49)  $a(x + 1)(x + 2)$   
 (50)  $b(y + 3)(y + 3)$  (51)  $-2(5x + 2)(2x + 3)$  (52)  $-5(4y + 7)(2y + 5)$  (53) Does Not Factor  
 (54) Does Not Factor (55)  $R$  (56)  $(3x + 4)(5x + 2)$  (57)  $(2y - 7)(5y + 3)$   
 (58)  $3(x - 12)(x + 6)$  (59)  $a(8s - 3)(2s + 3)$  (60)  $(9s - 5t)(2s + 3t)$  (61) Does Not Factor  
 (62)  $(3x^2 - 5)^2$  (63)  $2a(5x + 3)(2x - 7)$  (64)  $-6(3x + 2)(5x + 8)$  (65)  $(4z - 3)(2z + 3)$   
 (66)  $(x^2 - 12)(x^2 + 3)$  (67)  $(5a - 7)(2a + 3)$