

KidSmart Education Worksheet Answers

A0718: Factoring – Mixed (Odd Problems Only)

Section I. Factor Out First

1. $15x^2 + 35x = 5x(3x + 7)$

3. $18k^4m^2 - 12k^3m^7 = 6k^3m^2(3k - 2m^5)$

Section II. Factoring a Difference of Two Squares

5. $x^2 - 36 = (x - 6)(x + 6)$

7. $x^2 - 4 = (x - 2)(x + 2)$

9. $9x^2 - 169y^2 = (3x - 13y)(3x + 13y)$

Section III. Double Factor

11. $x^4 - 81 = (x^2 - 9)(x^2 + 9) = (x - 3)(x + 3)(x^2 + 9)$

13. $x^4 - 2x^2 - 8 = (x^2 - 4)(x^2 + 2) = (x - 2)(x + 2)(x^2 + 2)$

Section IV. Factoring a Trinomial with a Leading Coefficient of 1

15. $x^2 + 13x + 36 = (x + 9)(x + 4)$

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

19. $x^2 + 5x - 6 = (x + 6)(x - 1)$

21. $x^2 - 11x - 12 = (x - 12)(x + 1)$

23. $x^2 - 16x + 64 = (x - 8)^2$

Section V. Recognizing the Switch of a and c in $ax^2 + bx + c$

25a. $x^2 + 7x + 10 = (x + 5)(x + 2)$

25b. $10x^2 + 7x + 1 = (5x + 1)(2x + 1)$

27a. $x^2 - 6x - 16 = (x - 8)(x + 2)$

27b. $16x^2 - 6x - 1 = (8x + 1)(2x - 1)$

Section VI. Factoring by Grouping

$$29. \quad 5x^3 + 10x^2 + 3x + 6 = 5x^2(x + 2) + 3(x + 2) = (5x^2 + 3)(x + 2)$$

$$31. \quad 3x^3 - 12x^2 + x - 4 = 3x^2(x - 4) + 1(x - 4) = (3x^2 + 1)(x - 4)$$

Section VII. Factoring with a Leading Coefficient and a Constant Greater than 1

$$33. \quad 3x^2 + 5x + 2 = (3x + 2)(x + 1)$$

$$35. \quad 4x^2 - 8x - 21 = (2x - 7)(2x + 3)$$

$$37. \quad 5x^2 - 17x + 6 = (5x - 2)(x - 3)$$

Section VIII. Factoring by Factoring out First

$$39. \quad 2x^2 + 12x - 14 = 2(x^2 + 6x - 7) = 2(x + 7)(x - 1)$$

$$41. \quad 3x^2 - 27 = 3(x^2 - 9) = 3(x - 3)(x + 3)$$

$$43. \quad 6x^3 - 36x^2 + 30x = 6x(x^2 - 6x + 5) = 6x(x - 5)(x - 1)$$