

P. Math 10
Factoring Practice

Name - KEY

Factor each completely. Show all steps.

$$1. 6y^2 - 3y + 12 = \\ 3(2y^2 - y + 4)$$

$$3. n^2 - 5n - 24 = \\ (n - 8)(n + 3)$$

$$5. 16x^2 - 49y^2 = \\ (4x - 7y)(4x + 7y)$$

$$7. 10y(x - 3) + 7(x - 3) = \\ (x - 3)(10y + 7)$$

$$9. 5a^2 - 7a - 6 = \\ 5a^2 - 10a + 3a - 6 = \\ 5a(a - 2) + 3(a - 2) = \\ (a - 2)(5a + 3)$$

$$11. x^4 - 13x^2 + 36 = \\ (x^2 - 9)(x^2 - 4) = \\ (x - 3)(x + 3)(x - 2)(x + 2)$$

$$13. x^2 + 6x + 9 = \\ (x + 3)(x + 3)$$

$$15. 9x^2 + 12x + 4 = \\ 9x^2 + 6x + 6x + 4 = \\ 3x(3x + 2) + 2(3x + 2) = \\ (3x + 2)(3x + 2)$$

$$17. 2h^2 + 5h + 2 = \\ 2h^2 + 4h + h + 2 = \\ 2h(h + 2) + 1(h + 2) = \\ (h + 2)(2h + 1)$$

$$2. 2x^2 + 8x + 6 = \\ 2(x^2 + 4x + 3) = \\ 2(x + 1)(x + 3)$$

$$4. 14t^2 - 19t - 3 = \\ 14t^2 - 21t + 2t - 3 = \\ 7t(2t - 3) + 1(2t - 3) = \\ (2t - 3)(7t + 1)$$

$$6. m^2 - 15m + 50 = \\ (m - 5)(m - 10)$$

$$8. 10a^3b^2 + 15a^2b^4 - 5a^2b^2 = \\ 5a^2b^2(2a + 3b^2 - 1)$$

$$10. x^2 + 12x - 28 = \\ (x + 14)(x - 2)$$

$$12. 4y^2 - 20y - 56 = \\ 4(y^2 - 5y - 14) = \\ 4(y - 7)(y + 2)$$

$$14. 25y^2 - 144 = \\ (5y - 12)(5y + 12)$$

$$16. 12p^2q + 18pq^2 = \\ 6pq(2p + 3q)$$

$$18. 81a^2 - (3a + b)^2 = \\ [9a - (3a + b)][9a + (3a + b)] = \\ (9a - 3a - b)(9a + 3a + b) = \\ (6a - b)(12a + b)$$