Factor Worksheet Page 1 - Factor completely.

1. $ax + ay + bx + by$

$a(x+y) + b(x+y)$

$(a+b)(x+y)$

2. $8x^2 + 2xy + 12x + 3y$

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

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

3. $6mn - 9m - 4n + 6$

$3m(2n-3) - 2(2n-3)$

$(3m-2)(2n-3)$

4. $2x^2y + 6xy - x - 3$

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

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

5. $4k + 12 + k^2 + 3k$

$4(k+3) + k(k+3)$

$(4+k)(k+3)$

6. $p^2q + pq - 1 - p$

$pq(p+1) - 1(p+1)$

$(pq-1)(p+1)$

7. $2ac + ad + 6bc + 3bd$

$a(2c+d) + 3b(2c+d)$

$(a+3b)(2c+d)$

8. $4r^2s - 8rs - 3r + 6$

$4rs(r-2) - 3(r-2)$

$(4rs-3)(r-2)$

9. $z^3 - 6 + 2z - 3z^2$

$z^3 + 2z - 6 - 3z^2$

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

10. $3a - 5a^2 - 6b + 10ab$

$a(3-5a) - 2b(3-5a)$

$(a-2b)(3-5a)$

11. $2uv - u^2v - 6 + 3u$

$uv(2-u) - 3(2-u)$

$(uv-3)(2-u)$

12. $6cd^2 - 8cd - 9d + 12$

$2cd(3d-4) - 3(3d-4)$

$(2cd-3)(3d-4)$

13. $2e^2f - 12ef + 3e - 18$

$2ef(e-6) + 3(e-6)$

$(2ef+3)(e-6)$

14. $3ac + 3bc + ad + bd$

$3c(a+b) + d(a+b)$

$(3c+d)(a+b)$

15. $2cx + cy - 2dx - dy$

$c(2x+y) - d(2x+y)$

$(c-d)(2x+y)$

16. $bx^4 - by^4 + cx^4 - cy^4$

$b(x^4-y^4) + c(x^4-y^4) = (b+c)(x^4-y^4)$

$(b+c)(x^2+y^2)(x^2-y^2)$

$(b+c)(x^2+y^2)(x+y)(x-y)$

17. $r^2 + 6rt + 9t^2 - a^2 - 2ab - b^2$

$(r+3t)^2 - 1(a+b)^2$

$[(r+3t)+(a+b)][(r+3t)-(a+b)]$

18. $4x^2 + 4xy + y^2 - 9a^2 - 12at - 4t^2$

$(2x+y)^2 - 1(3a+2t)^2$

$[(2x+y)+(3a+2t)][(2x+y)-(3a+2t)]$

19. $6x^3 + 9x - 4x^2 - 6$

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

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

20. $2xz - 6xy + 2yz - 6y^2$

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

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

Factor Worksheet Page 2 - Factor completely.

21. $9x^2 - 30x + 25$

$(3x-5)^2$

22. $3x^2 + 12x + 12$

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

$3(x+2)^2$

23. $5x^2 - 30x + 45$

$5(x^2-6x+9)$

$5(x-3)^2$

24. $16x^2 + 8x + 1$

$(4x+1)^2$

25. $-9x^2 + 12x - 4$

$-1(9x^2-12x+4)$

$-1(3x-2)^2$

26. $5x^2 + 10x + 5$

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

$5(x+1)^2$

27. $9x^2 - 42xy + 49y^2$

$(3x-7y)(3x-7y) = (3x-7y)^2$

28. $7x^2 + 14xy + 7y^2$

$7(x^2+2xy+y^2)$

$7(x+y)^2$

29. $a^4 - b^4$

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

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

30. $4x^4 - 4y^4$

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

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

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

31. $2x^2 - 50$

$2(x^2-25) = 2(x+5)(x-5)$

32. $4x^2 - 24x + 36$

$4(x^2-6x+9)$

$4(x-3)^2$

33. $a^2b - 16b^5$

$b(a^2-16b^4)$

$b(a+4b^2)(a-4b^2)$

34. $4x^2y - 4y^3$

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

$4y(x+y)(x-y)$

35. $81d^4 - c^4$

$(9d^2-c^2)(9d^2+c^2)$

$(3d-c)(3d+c)(9d^2+c^2)$

36. $a^4 - 16$

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

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

37. $16x^2 + 24x + 9$

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

$(4x+3)^2$

38. $x^2 + 2xy + y^2 - 4$

$(x+y)^2 - 4$

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

39. $25x^2 - 20x + 4$

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

$(5x-2)^2$

40. $y^2 - 6y + 9 - 4x^2$

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

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