PRACTICE Factoring

Name _____

1. $4x^2 - 9$
2. $36x^2 - y^2$
3. $18y^2 + 21yx - 4x^2$
4. $6t^2 - 7t - 3$
5. $4x^2 - 12x + 9$
6. $x^2 - x - 72$
7. $2y^2 - 7y + 5$
8. $x^2 - y^2$
9. $10x^2 - x - 2$
10. $3z^2 - 3z - 4$
11. $9x^2 + 6x + 1$
12. $y^2 + 15y + 56$
13. $2w^2 + 9w + 10$
14. $2x^2 + 10x$
15. $6x^2 + 11x + 4$
16. $x^2 + 8x + 15$
17. $3x^2 + 7x + 2$
18. $4x^2 + 18x + 20$
19. $9k^2 - 1$
20. $2x^2 - 19xy + 42y^2$
21. $x^2 + 3x$
22. $144r^2 - 49s^2$
23. $x^2 + 5x + 6$
24. $y(x + s) + z(x + s)$
25. $x^2 + 6x + 9$
26. $4x^2 - 40x + 84$
27. $16k^2 - 49$
28. $c^2 - 11c + 30$
29. $6s^2 - 29s + 35$
30. $25w^2 - 36$
31. $4r^2 - 20r + 25$
32. $15r^2 - 23rs + 4s^2$
33. $x^2 - 8x + 16$
34. $9x^2 + 12xy + 4y^2$
35. $2d^2 - 11d - 6$
36. $25r^2 - 36s^2$
37. $2r^2 + 13r + 20$
38. $x^2 + 14x + 49$
39. $15r^2 - 7r - 2$
40. $13x^2 - 57x + 20$
41. $y^2 - 49$
42. $x^2 - 6x + 9$
43. $75x^2 + 210xy + 147y^2$
44. $36m^2 - 96mn + 64n^2$
45. $4 - 9w^2$
46. $9x^2 + 8x + 25$

47. Determine two values of k so that each expression can be factored.
    a. $kx^2 - 16$
    b. $x^2 + kx - 15$
    c. $x^2 + kx - 18$
    d. $12x^2 + kx + 14$

PRACTICE Factoring ANSWERS Name _____

1. $4x^2 - 9 = (2x+3)(2x-3)$
2. $36x^2 - y^2 = (6x+y)(6x-y)$
3. $18y^2 + 21yx - 4x^2 = (3y+4x)(6y-x)$
4. $6t^2 - 7t - 3 = (2t-3)(3t+1)$
5. $4x^2 - 12x + 9 = (2x-3)^2$
6. $x^2 - x - 72 = (x-9)(x+8)$
7. $2y^2 - 7y + 5 = (2y-5)(y-1)$
8. $x^2 - y^2 = (x+y)(x-y)$
9. $10x^2 - x - 2 = (2x-1)(5x+2)$
10. $3z^2 - 3z - 4$ not possible
11. $9x^2 + 6x + 1 = (3x+1)^2$
12. $y^2 + 15y + 56 = (y+7)(y+8)$
13. $2w^2 + 9w + 10 = (2w+5)(w+2)$
14. $2x^2 + 10x = 2x(x+5)$
15. $6x^2 + 11x + 4 = (2x+1)(3x+4)$
16. $x^2 + 8x + 15 = (x+5)(x+3)$
17. $3x^2 + 7x + 2 = (3x+1)(x+2)$
18. $4x^2 + 18x + 20 = 2(2x^2+9x+10) = 2(2x+5)(x+2)$
19. $9k^2 - 1 = (3k+1)(3k-1)$
20. $2x^2 - 19xy + 42y^2 = (2x-7y)(x-6y)$
21. $x^2 + 3x = x(x+3)$
22. $144r^2 - 49s^2 = (12r+7s)(12r-7s)$
23. $x^2 + 5x + 6 = (x+2)(x+3)$
24. $y(x+s) + z(x+s) = (x+s)(y+z)$
25. $x^2 + 6x + 9 = (x+3)^2$
26. $4x^2 - 40x + 84 = 4(x^2 - 10x + 21) = 4(x-3)(x-7)$
27. $16k^2 - 49 = (4k+7)(4k-7)$
28. $c^2 - 11c + 30 = (c-6)(c-5)$
29. $6s^2 - 29s + 35 = (2s-5)(3s-7)$
30. $25w^2 - 36 = (5w+6)(5w-6)$
31. $4r^2 - 20r + 25 = (2r-5)^2$
32. $15r^2 - 23rs + 4s^2 = (3r-4s)(5r-s)$
33. $x^2 - 8x + 16 = (x-4)^2$
34. $9x^2 + 12xy + 4y^2 = (3x+2y)^2$
35. $2d^2 - 11d - 6 = (2d+1)(d-6)$
36. $25r^2 - 36s^2 = (5r+6s)(5r-6s)$
37. $2r^2 + 13r + 20 = (2r+5)(r+4)$
38. $x^2 + 14x + 49 = (x+7)^2$
39. $15r^2 - 7r - 2 = (3r-2)(5r+1)$
40. $13x^2 - 57x + 20 = (13x-5)(x-4)$
41. $y^2 - 49 = (y+7)(y-7)$
42. $x^2 - 6x + 9 = (x-3)^2$
43. $75x^2 + 210xy + 147y^2 = 3(25x^2+70xy+49y^2) = 3(5x+7y)^2$
44. $36m^2 - 96mn + 64n^2 = 4(9m^2-24mn+16n^2) = 4(3m-4n)^2$
45. $4 - 9w^2 = (2+3w)(2-3w)$
46. $9x^2 + 8x + 25$ not possible
47. Determine two values of k so that each expression can be factored.
    a. $kx^2 - 16$ $k = 1, 4, 9, \cdots$
    b. $x^2 + kx - 15$ $k = \pm 14, \pm 2$
    c. $x^2 + kx - 18$ $k = \pm 17, \pm 7, \pm 3$
    d. $12x^2 + kx + 14$

$k = 86, 31, 26, 169$

$(26), 46, (86), 34$

$29, (34), 59, (46)$