Mixed Review on Factoring

Name _____ Date _____

Factor completely. If the polynomial cannot be factored, write prime.

(GCF)

1. $5a^2 - 15$

$5(a^2-3)$

2. $16wv^4 + 12w^3v^2$

$4wv^2(4v^2+3w^2)$

3. $7x^3 + 28x^2$

$7x^2(x+4)$

(GROUPING)

4. $(6xy^2 - 3xy)(8y - 4)$

$3xy(2y-1)+4(2y-1)$

$(2y-1)(3xy+4)$

5. $x^3 + x^2 + 5x + 5$

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

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

6. $4k^3 + 8k^2 + 9k + 18$

$4k^2(k+2)+9(k+2)$

$(k+2)(4k^2+9)$

(a=1, trinomial)

7. $p^2 - 14p + 49$

$(p-7)(p-7)$

or

$(p-7)^2$

49: -7×-7, $-7 + -7 = -14$

8. $m^2 - 16m + 64$

$(m-8)(m-8)$

or

$(m-8)^2$

64: -8×-8, $-8 + -8 = -16$

9. $w^2 - 2w + 1$

$(w-1)(w-1)$

or

$(w-1)^2$

1: -1×-1, $-1 + -1 = -2$

10. $b^2 - 7b + 10$

$(b-5)(b-2)$

10: -5×-2, $-5 + -2 = -7$

11. $2x^2 + 20x + 50$

$2(x^2+10x+25)$

$2(x+5)(x+5)$

or

$2(x+5)^2$

25: 5×5, $5 + 5 = 10$

12. $5k^2 + 50k + 125$

$5(k^2+10k+25)$

$5(k+5)(k+5)$

or

$5(k+5)^2$

25: 5×5, $5 + 5 = 10$

(Binomial, Difference of Squares)

13. $169 - w^2$

$(13-w)(13+w)$

14. $4a^2 - 49$

$(2a-7)(2a+7)$

15. $a^4 - b^4$

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

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

16. $81p - p^3$

$p(81-p^2)$

$p(9-p)(9+p)$

17. $4b^2 + 9c^2$

PRIME

18. $5m^{10} - 5m^2n^8$

$5m^2(m^8 - n^8)$

$(m^4-n^4)(m^4+n^4)$

$(m^2-n^2)(m^2+n^2)(m^4+n^4)$

$5(m-n)(m+n)(m^2+n^2)(m^4+n^4)$

(Trinomial, $a>1$)

19. $2y^2 - 8y + 5$

PRIME

20. $5r^2 - 14r - 3$

$(r - \frac{15}{5})(r + \frac{1}{5})$ -15 1 -14

$(r-3)(5r+1)$

21. $5x^2 + 6x + 1$

$(x+\frac{5}{5})(x+\frac{1}{5})$ 5 1 6

$(x+1)(5x+1)$

22. $4x^2 + 6x - 54$

$2(2x^2+3x-27)$ -54 9 -6 3

$(x+\frac{9}{2})(x-\frac{6}{2})$

$2(2x+9)(x-3)$

23. $6c^2 + 7c + 2$

$(x+\frac{4}{3})(x+\frac{3}{6})$ 12 4 3 7

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

24. $6m^2 + 4m - 10$

$2(3m^2+2m-5)$ -15

$(m+\frac{5}{3})(m-\frac{3}{3})$ 5 -3 2

$2(3m+5)(m-1)$

25. $2x^2 - 2x - 12$

$2(x^2 - x - 6)$ -6 -3 2 -1

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

26. $25w^2 - 20w + 4$

$(x-\frac{10}{5})(x-\frac{10}{5})$ 100 -10 -10 -20

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

or

$(5x-2)^2$

27. $x^2 + 100$

PRIME