Review

Name_____ Date_____

Factoring

Factor using greatest common factor (GCF).

1. $18x^5 - 27x^3$

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

2. $x^8 + x^3y^6 - 3x^5$

$x^3(x^5+y^6-3x^2)$

3. $12ay^3 + 24a^4 - 48a^5y^9$

$12a(y^3+2a^3-4a^4y^9)$

4. $16x^2y^3 + 40x^3y^5$

$8x^2y^3(2+5xy^2)$

5. $12x^4y^9 - 3x^3y^2 + 9x^5y^7$

$3x^3y^2(4xy^7-1+3x^2y^5)$

Factor each quadratic trinomial, where a = 1.

6. $x^2 - 14x + 48$

$(x-6)(x-8)$

7. $x^2 - 9x - 36$

$(x+3)(x-12)$

8. $x^2 + 12x + 32$

$(x+8)(x+4)$

9. $x^2 - 6x - 27$

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

10. $x^2 + 9x - 22$

$(x+11)(x-2)$

Factor each quadratic trinomial, where a > 1.

11. $9x^2 + 18x + 8$

p: 72
s: 18

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

12. $12x^2 - 35x + 8$

p: 96
s: -35

$(3x-8)(4x-1)$

13. $12x^2 - 13x - 14$

p: -168
s: -13

$(3x+2)(4x-7)$

14. $16x^2 + 24x + 9$

p: 144
s: 24

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

15. $10x^2 + 17x - 20$

p: -200
s: 17

$(5x-4)(2x+5)$

Factor using difference of squares. $a^2 - b^2 = (a + b)(a - b)$

16. $81x^2 - 25$

$(9x+5)(9x-5)$

17. $x^4 - 144$

$(x^2+12)(x^2-12)$

18. $16x^2 - 64y^2$

$16(x^2-4y^2)$

$16(x+2y)(x-2y)$

19. $36x^6 - 16y^8$

$4(9x^6-4y^8)$

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

Factor using sum or difference of cubes. $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

20. $x^3 + 64$

$(x+4)(x^2-4x+16)$

21. $x^3 - 27$

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

22. $125x^3 - 8y^3$

$(5x-2y)(25x^2+10xy+4y^2)$

Factor by grouping.

23. $6 + 9y + 8x + 12xy$

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

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

24. $4xy + xm + 8wy + 2wm$

$x(4y+m) + 2w(4y+m)$

$(x+2w)(4y+m)$

25. $6x^2y - 12z^2y + 4x^2w - 8z^2w$

$6y(x^2-2z^2) + 4w(x^2-2z^2)$

$(6y+4w)(x^2-2z^2)$

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

Factor Completely.

26. $2m^2 - 98$

$2(m^2-49)$

$2(m+7)(m-7)$

27. $x^4 - 1$

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

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

28. $2r^3 - 16m^3$

$2(r^3-8m^3)$

$2(r-2m)(r^2+2rm+4m^2)$

29. $162x^2 - 98$

$2(81x^2-49)$

$2(9x+7)(9x-7)$

30. $2m^3 - 12m^2 + 18m$

$2m(m^2-6m+9)$

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

or $2m(m-3)^2$

31. $2r^3 + 250$

$2(r^3+125)$

$2(r+5)(r^2-5r+25)$

32. $x^2 - 7x + 10$

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

33. $3x^2 + 16x - 35$

$(3x-5)(x+7)$