

Name: _____ Date: _____ Per: _____

Final Exam Review Polynomials and Factoring

Add, subtract or multiply.

1. $(9x + 6x^3 - 8x^2) + (-5x^3 + 6x)$

$$x^3 - 8x^2 + 15x$$

2. $(2s^3 + 8) - (-3s^3 + 7s - 5)$

$$5s^3 - 7s + 13$$

3. $(-3d + 10)(2d - 1)$

$$-6d^2 + 23d - 10$$

4. $(2s + 5)(s^2 + 3s - 1)$

$$2s^3 + 11s^2 + 13s - 5$$

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

$$9x^2 + 48xy + 64y^2$$

6. $(3m - 7n)^2$

$$9m^2 - 42mn + 49n^2$$

Factor each polynomial by finding the GCF.

7. $2x^2 - 4x$

$$2x(x - 2)$$

8. $-4y + 16y^2$

$$-4y(1 - 4y)$$

9. $3xy + 8xy^2$

$$xy(3 + 8y)$$

Factor each polynomial completely.

10. $x^2 - 7x + 12$

$(x - 3)(x - 4)$

11. $x^2 - 2x - 24$

$(x - 6)(x + 4)$

12. $-x^2 - 9x - 18$

$-1(x + 6)(x + 3)$

13. $3x^2 + x - 2$

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

14. $5x^2 - 6x + 1$

$(5x - 1)(x - 1)$

15. $3x^2 + 13x + 4$

$(3x + 1)(x + 4)$

16. $x^2 - 25$

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

17. $4x^2 - 169$

$(2x + 13)(2x - 13)$

18. $2x^2 - 50$

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

19. $4x^2 + 20x + 25$

$(2x + 5)^2$

20. $3x^2 - 24x + 48$

$3(x - 4)^2$

21. $7a^3b^3 - 63ab^3$

$7ab^3(a + 3)(a - 3)$

22. $-4s^3t^3 + 24s^2t^2 - 36st$

$-4st(st - 3)^2$

23. $6g^3 - 24g^2 + 24g$

$6g(g - 2)^2$

24. $3n^5 - 48n^3$

$3n^3(n + 4)(n - 4)$

Solve each polynomial equation.

25. $(3x-1)(x+2)=0$

$x = 1/3$ and $x = -2$

26. $x(3x-7)(4x-1)=0$

$x = 0$, $x = 7/3$ and $x = 1/4$

27. $x(2x-5)=0$

$x = 0$ and $x = 5/2$

28. $7x^2+21x=0$

$x = 0$ and $x = -3$

29. $8x^2-16x=0$

$x = 0$ and $x = 2$

30. $2x^2=-7x$

$x = 0$ and $x = -7/2$

31. $x^2-7x+12=0$

$x = 4$ and $x = 3$

32. $x^2-17x+60=0$

$x = 5$ and $x = 12$

33. $x^2+8x=-12$

$x = -6$ and $x = -2$

34. $3x^2+x-2=0$

$x = 2/3$ and $x = -1$

35. $2x^2-3x-35=0$

$x = -7/2$ and $x = 5$

36. $4x^2+11x=3$

$x = 1/4$ and $x = -3$