Extended Algebra 1   Name:_____

Factoring Worksheet 1

Fully factor each expression, using the greatest common factor.

1. $-8x^3 - 4x^2 - 5x$ **2.** $-28x^3 - 12x$ **3.** $-4x^2 + 32x$

4. $360x^2 + 45x$ **5.** $4x^3 + 18x$ **6.** $-8x^2 - 10x$

7. $-5x^3 + 4x$ **8.** $9x^3 + 12x^2 - 18x$ **9.** $4x^2 + 9x$

10. $21x^3 + 27x^2$ **11.** $-8x^2 + 9x$ **12.** $15x^3 + 27x$

13. $-70x^3 - 112x^2 - 56x$ **14.** $-7x^2 + 11x$ **15.** $-6x^3 + 12x^2 + 10x$

16. $-x^2 - 12x$ **17.** $-4x^5 + 40x^2$ **18.** $-16x^4 - 32x^3 - 20x^2$

19. $-2x^3 - 10x$

20. $24x^6 - 22x^5 - 16x^4$

21. $-33x^3 + 9x^2 + 30x$

22. $6x^3 - 12x^2 - 9x$

23. $x^2 - 4x$

24. $-2x^4 - 4x^2$

25. $-168x^3 + 224x^2 - 28x$

26. $-4x^4 + 24x^2$

27. $4x^5 - 20x^3$

28. $-42x^6 - 231x^4$

29. $12x^3 - 40x$

30. $16x^3 - 8x^2 - 28x$

Simplify each expression, leaving no negative exponents.

31. $\frac{x^{-4}}{x^5}$

32. $\left(2x^2\right)^3$

33. $\left(3xy^2\right)\left(4x^2y^3\right)$

34. $\left(5x^2 - 2x + 7\right) - \left(x^2 - 2x\right)$

35. $2xy^2\left(x - xy + y^2\right)$

36. $\left(3x + 5\right)\left(2x - 3\right)$

Factoring Worksheet 1 Answers

1. $-x(8x^2 + 4x + 5)$ **2.** $-4x(7x^2 + 3)$ **3.** $-4x(x - 8)$

4. $45x(8x + 1)$ **5.** $2x\left(2x^2 + 9\right)$ **6.** $-2x\left(4x + 5\right)$

7. $-x(5x^2 - 4)$ **8.** $3x(3x^2 + 4x - 6)$ **9.** $x(4x + 9)$

10. $3x^2\left(7x + 9\right)$ **11.** $-x(8x - 9)$ **12.** $3x(5x^2 + 9)$

13. $-14x(5x^2 + 8x + 4)$ **14.** $-x(7x - 11)$ **15.** $-2x(3x^2 - 6x - 5)$

16. $-x(x + 12)$ **17.** $-4x^2(x^3 - 10)$ **18.** $-4x^2(4x^2 + 8x + 5)$

19. $-2x(x^2 + 5)$ **20.** $2x^4(12x^2 - 11x - 8)$ **21.** $-3x(11x^2 - 3x - 10)$

22. $3x(2x^2 - 4x - 3)$ **23.** $x(x - 4)$ **24.** $-2x^2(x^2 + 2)$

25. $-28x(6x^2 - 8x + 1)$ **26.** $-4x^2(x^2 - 6)$ **27.** $4x^3(x^2 - 5)$

28. $-21x^4(2x^2 + 11)$ **29.** $4x(3x^2 - 10)$ **30.** $4x(4x^2 - 2x - 7)$

31. $\frac{1}{x^9}$ **32.** $8x^6$ **33.** $12x^3y^5$

34. $4x^2 + 7$ **35.** $2x^2y^2 - 2x^2y^3 + 2xy^4$ **36.** $6x^2 + x - 15$