

**Lesson #10 A-3: Factoring Complex Trinomials and Factoring Polynomials by Grouping  
(Reference: Lesson #61 in Text Book)****Problem**

1. Please fully factor each of the following Polynomials.

1.  $5x^4y^2 + 10x^3y^3 + 12xz^3 + 24yz^3$

2.  $9y^2z^5 + 18yz^6 + 8x^7y + 16zx^7$

3.  $5x^2y^3 - 12x^3z - 12xz + 5y^3$

4.  $6x^3y^4 - 8x^2y^5 - 9xz^3 + 12yz^3$

5.  $81xy^3z^3 + 9xy^3z^2 - 27y^3z^3 - 3y^3z^2$

6.  $81x^3yz^2 - 27x^3z^2 + 27x^2yz^2 - 9x^2z^2$

7.  $50x^4y^4 - 30x^3y^4 - 500x^3y^3 + 300x^2y^3$

8.  $3x^3y^3z^3 - 4x^2y^3z^3 + 20xy^2z^3 - 15x^2y^2z^3$

9. Please fully factor each of the following trinomials and complex trinomials by grouping or previous methods.

9.  $4x^2y - 16xy - 84y$

10.  $2x^2y^3 - 8xy^4 - 154y^5$

11.  $15x^3yz - 39x^2yz + 18xyz$

12.  $12x^5y^2 - 2x^4y^3 - 30x^3y^4$

13.  $-8x^3y^3 + 4x^2y^3 + 60xy^3$

14.  $12x^8y^4 + 6x^7y^5 - 36x^6y^6$

15.  $18x^4y^6 + 63x^3y^6 + 27x^2y^6$

16.  $28x^5y^4 - 58x^4y^5 - 30x^3y^6$