

**4.2****Practice B**

WORK MUST DONE ON LOOSELEAF.  
To be collected.

In Exercises 1 and 2, find the sum.

1.  $(8x^7 - 6x^5 + 4x^3 - 6x) + (15x^6 + 4x^5 - 3x^3 + 2)$

2.  $(8x^4 - 2x^3 + 9x^2 + 7x + 14) + (6x^4 - 5x^3 - 9x^2 - 11x - 9)$

In Exercises 3 and 4, find the difference.

3.  $(9x^5 + 5x^4 - 9x^2 + 10x) - (12x^5 + 2x^4 - x^2 - 9)$

4.  $(12x^4 - 6x^2 + 2x + 14) - (3x^4 - 5x^3 + 9x + 3)$

In Exercises 5–8, find the product.

5.  $(x^2 - 7x - 2)(x^2 - 3x - 6)$

6.  $(2x^2 + 3x - 1)(-5x^2 - 2x + 4)$

7.  $(4x^2 - 3x + 6)(x^2 - 2x + 2)$

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

9. Describe and correct the error in performing the operation.

$$\times \quad 4x^2(3x^4 - 2x^3 + 7) = 12x^8 - 8x^6 + 28x^2$$

In Exercises 10–13, find the product of the binomials.

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

11.  $(2x + 3)(x - 5)(4x + 1)$

12.  $(2x - 1)(3 - 2x)(4x + 5)$

13.  $(5 - 2x)(2 - x)(4x + 3)$

In Exercises 14–16, find the product.

14.  $(3x + 5)(3x - 5)$

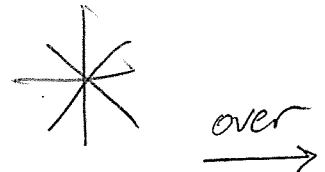
15.  $(6t + 7)^2$

16.  $(pq + 2)^2$

17. A rectangular pool has a level floor. The length of the pool is  $(3x - 1)$  feet, the width of the pool is  $(x + 6)$  feet, and the depth of the pool is  $(x + 6)$  feet.

a. Write an expression for the volume of the pool as a product of binomials.

b. Write an expression for the volume of the pool as a polynomial in standard form.



## Binomial Expansion Worksheet

Expand completely. *You must show work.*

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

2)  $(5b + 1)^3$

3)  $(2b - 1)^3$

4)  $(3u + 1)^5$

5)  $(2y^4 - 1)^6$

6)  $(1 + 2x^3)^5$

7)  $(3x^2 - 1)^5$

8)  $(4n^3 + 1)^4$

9)  $(2y^2 - 1)^6$

10)  $(1 + 3n^3)^4$

- Answers:
- 1)  $1 + 10a + 40a^2 + 80a^3 + 80a^4 + 32a^5$
  - 2)  $125b^3 + 75b^2 + 15b + 1$
  - 3)  $8b^3 - 12b^2 + 6b - 1$
  - 4)  $243u^5 + 405u^4 + 270u^3 + 90u^2 + 15u + 1$
  - 5)  $64y^{24} - 192y^{20} + 240y^{16} - 160y^{12} + 60y^8 - 12y^4 + 1$
  - 6)  $1 + 10x^3 + 40x^6 + 80x^9 + 80x^{12} + 32x^{15}$
  - 7)  $243x^{10} - 405x^8 + 270x^6 - 90x^4 + 15x^2 - 1$
  - 8)  $256n^{12} + 256n^9 + 96n^6 + 16n^3 + 1$
  - 9)  $64y^{12} - 192y^{10} + 240y^8 - 160y^6 + 60y^4 - 12y^2 + 1$
  - 10)  $1 + 12n^3 + 54n^6 + 108n^9 + 81n^{12}$