

**Foundations of Algebra**  
**Unit 7 - Battleship Review**

Name: Key

*PART I: Classifying Polynomials*

For each question, re-write in standard form, identify the leading coefficient, and classify by degree and term.

1.  $10 + 4p^3$

Standard Form:  $4p^3 + 10$

Leading Coefficient: 4

Degree: CUBIC

Term: Binomial

2.  $x^3 + 3x^2 - 54x$

Standard Form:  $x^3 + 3x^2 - 54x$

Leading Coefficient: 1

Degree: CUBIC

Term: trnomial

3.  $-9v$

Standard Form:  $-9v$

Leading Coefficient: -9

Degree: Linear

Term: monomial

4.  $-10 + 4x^3 - 9x^4 - x$

Standard Form:  $-9x^4 + 4x^3 - x - 10$

Leading Coefficient: -9

Degree: Quartic

Term: polynomial

*PART II: Add/Subtract Polynomials*

5.  $(6x + 5) + (-3x + 7)$

$3x + 12$

6.  $(2x - 8) - (4x - 2)$

$-2x - 6$

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

$x^3 - 6x^2 + 8x + 6$

8.  $(-x^2 - 5x + 8) - (4x^2 - 7x - 10)$

$-x^2 - 5x + 8 - 4x^2 + 7x + 10$

$-5x^2 + 2x + 18$

9.  $(3q^2 - 7q - 6) + (2q^2 - 5q^3 + 8q)$

$-5q^3 + 5q^2 + q - 6$

10.  $(-m^2 - 5mn) - (m^2 + 3mn - 9n^2)$

$-m^2 - 5mn - m^2 - 3mn + 9n^2$

$-2m^2 - 8mn + 9n^2$

*PART III: Multiplying binomials*

11.  $(x + 7)(x + 5)$

$$x^2 + 12x + 35$$

12.  $(x - 8)(x - 2)$

$$x^2 - 10x + 16$$

13.  $(4x + 11)(x - 1)$

$$4x^2 + 7x - 11$$

14.  $(2 - 3x)(11x + 8)$

$$22x + 16 - 33x^2 - 24x$$

$$-33x^2 - 2x + 16$$

*PART IV: Special Products*

15.  $(x + 7)^2$

$$x^2 + 14x + 49$$

16.  $(x + 9)(x - 9)$

$$x^2 - 81$$

17.  $(x - 5)^2$

$$x^2 - 10x + 25$$

18.  $(3x - 4)(3x + 4)$

$$9x^2 - 16$$

*PART V: Product of a binomial and a trinomial*

19.  $(x - 8)(x^2 - 7x + 12)$

$$x^3 - 7x^2 + 12x - 8x^2 + 56x - 96$$

$$x^3 - 15x^2 + 68x - 96$$

20.  $(6x^2 - 3x + 5)(4x^2 + 3)$

$$24x^4 + 18x^2 - 12x^3 - 9x + 20x^2 + 15$$

$$24x^4 - 12x^3 + 38x^2 - 9x + 15$$

*CHALLENGE ROUND:*

21.  $(-6x - 7y)(-6x + 7y)$

$$36x^2 - 49y^2$$

22.  $(x^2 - 4x - 7)(x^2 + 2x + 1)$

$$x^4 + 2x^3 + x^2 - 4x^3 - 8x^2 - 4x - 7x^2 - 14x - 7$$

$$x^4 - 2x^3 - 14x^2 - 18x - 7$$