

# Handout 1-Arithmetic Operations with Polynomials

1. Add  $5x + 2y - 3z$  and  $2x - 5y - z$ .

$$7x - 3y - 4z$$

6. Multiply  $x^2 - x - 2$  by  $x - 3$ .

$$x^3 - 4x^2 + x + 6$$

2. Add  $x^3y - x^2y^2 - 4xy^2$  and  $2x^3y + x^2y^2 - 6xy^2$ .

$$3x^3y - 10xy^2$$

7. Multiply  $a - b - c$  by  $a + b - c$ .

$$a^2 - b^2 - 2ac + c^2$$

3. Simplify  $2c - d - (c + d) - (2c - 2d)$ .

$$-c$$

8. Multiply  $x^4 + x^2 + 1$  by  $x^4 - x^2 - 1$ .

$$x^8 - x^4 - 2x^2 - 1$$

4. Simplify  $x - (x + 2) - [(2x - 1) - 2x]$ .

$$-1$$

9. Multiply  $mn + n^2$  by  $mn - n^2$ .

$$m^2n^2 - n^4$$

5. Simplify  $n - [(m - n) - (m - n)]$ .

$$n$$

10. Multiply  $(a^2b^2 + a^2b^2)(a^2b^2 - a^2b^2)$ .

$$0$$