## 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 
$$(a^2b^2 + a^2b^2)(a^2b^2 - a^2b^2)$$
.

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