

Date: \_\_\_\_\_

## 2.2: Adding Polynomials

### Collecting Like Terms

To write an expression in simplest form, you must collect like terms.

1. Simplify

a)  $5x - 2x + 6x$

$$= 9x$$

b)  $6x + 4 - 8x$

$$= -2x + 4$$

c)  $4x - y + 5 + 7y - 2x$

$$= 2x + 6y + 5$$

d)  $5 - 4x - 7y + 8x - 2y + 8$

$$= 4x - 9y + 13$$

Note:

- put the like terms together, remembering to take the sign with the term
- put answer in order: variable in alphabetical order with constant term at the end

### Adding Polynomials

#### Steps to Adding Polynomials

- collect like terms

- powers do not change

- alphabetical order & highest power first.

1. Simplify each expression

a)  $(4m^2 + 2m) + (8m^2 + 3m)$

$$= 4m^2 + 8m^2 + 2m + 3m$$

$$= 12m^2 + 5m$$

b)  $(-4y^2 - 5 + 8y) + (-9 - 8y^2 + 10y)$

$$= -4y^2 - 8y^2 + 8y + 10y - 5 - 9$$

$$= -12y^2 + 18y - 14$$

c)  $(3xy^2 + 9 - 4xy) + (-8xy - 8y^2x)$

$$= 3xy^2 - 8xy^2 - 4xy - 8xy + 9$$

$$= -5xy^2 - 12xy + 9$$

2. Add  $2y^2 - 3y + 4$  to  $5y - 5y^2 - 3$

$$2y^2 - 5y^2 - 3y + 5y + 4 - 3$$

$$= -3y^2 + 2y + 1$$