

# Polynomials Module

## Lesson 3: Simplifying Like Terms Symbolically

Mathematics 9B – Worksheet

1. Add or subtract the following:

a.  $2 - 4 = \underline{\quad}$

b.  $-3 - 8 = \underline{\quad}$

c.  $-1 + 5 = \underline{\quad}$

d.  $5 - 7 = \underline{\quad}$

e.  $2x - 4x = \underline{\quad}$

f.  $-3y - 8y = \underline{\quad}$

g.  $-1a + 5a = \underline{\quad}$

h.  $5c - 7c = \underline{\quad}$

i.  $-3 - 7 + 2 = \underline{\quad}$

j.  $8 + 5 - 11 = \underline{\quad}$

k.  $-1 - 3 - 4 = \underline{\quad}$

l.  $12 - 17 + 8 = \underline{\quad}$

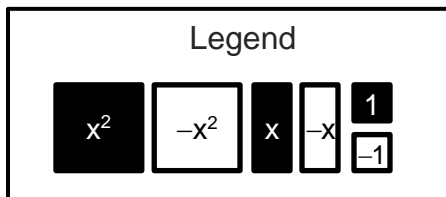
m.  $-3x - 7x + 2x = \underline{\quad}$

n.  $8y + 5y - 11y = \underline{\quad}$

o.  $-1x^2 - 3x - 4x = \underline{\quad}$

p.  $12x - 17 + 8 = \underline{\quad}$

2. Simplify the following expressions pictorially and symbolically using the legend provided.



Simplify PICTORIALY	Simplify SYMBOLICALLY
a. $3x - 1 - 7x + 2$	a. $3x - 1 - 7x + 2$
b. $2x^2 - 4 + 3x - x^2 + 1$	b. $2x^2 - 4 + 3x - x^2 + 1$

Simplify PICTORIALY	Simplify SYMBOLICALLY
c. $3 - 2x^2 - 4x + 2x^2 + 4x - 2$	c. $3 - 2x^2 - 4x + 2x^2 + 4x - 2$
d. $-3y + 6 + 2y - 6$	d. $-3y + 6 + 2y - 6$
e. $-a^2 + a - 1 - a^2 - a - 1$	e. $-a^2 + a - 1 - a^2 - a - 1$

3. Describe each of your simplified polynomial expressions in Question 2 above as monomial, binomial, or trinomial. State the degree of each polynomial.

Question	Monomial, binomial or trinomial?	Degree
2a.		
2b.		
2c.		
2d.		
2e.		

4. Simplify the following expressions SYMBOLICALLY. Work vertically, show all your work, and circle your final simplified expression.

a.  $4x - 2 + 6x - 8$

b.  $12a - 3a^2 + 6a - 2a^2$

c.  $-17 + y - 3 - 4y$

d.  $3x^2 - 4x - 1 - 2x^2 + 5x$

e.  $b - a + 6b - 5a + 12b$

f.  $9m + 5n + 7 - a - 3a^2$

5. Write this simplified expression in the correct order:

$$4x + 6a - 19 + 3x^2 - a^2$$

## Answers

1. a.  $-2$                       i.  $-8$   
   b.  $-11$                      j.  $2$   
   c.  $4$                          k.  $-8$   
   d.  $-2$                      l.  $3$   
   e.  $-2x$                     m.  $-8x$   
   f.  $-11y$                   n.  $2y$   
   g.  $4a$                      o.  $-1x^2 - 7x$   
   h.  $-2c$                     p.  $12x - 9$
2. a.  $-4x + 1$   
   b.  $x^2 + 3x - 3$   
   c.  $1$   
   d.  $-y$   
   e.  $-2a^2 - 2$
3. a. binomial of degree 1  
   b. trinomial of degree 2  
   c. monomial of degree 0  
   d. monomial of degree 1  
   e. binomial of degree 2
4. a.  $10x - 10$   
   b.  $-5a^2 + 18a$   
   c.  $-3y - 20$   
   d.  $1x^2 + 1x - 1$  or  $x^2 + x - 1$   
   e.  $-6a + 19b$   
   f.  $-3a^2 - a + 9m + 5n + 7$
5.  $-a^2 + 6a + 3x^2 + 4x - 19$