

Adding & Subtracting Polynomials Review

1. Complete the following table:

Polynomial	Type (Monomial, Binomial, Trinomial)	Variable	Coefficient(s)	Constant	Degree
$5r$					
$x^2 - 2x + 1$					
	Binomial	y	3	-1	2
	Trinomial	w	5, -3	6	2
	Monomial				0

2. Circle the terms that are 'like' $2x^2$:

- a) $2x$ b) $-3x^2$ c) 2 d) $5x^2$

3. Write the opposite of each term:

- a) $5x$ _____ b) -1 _____ c) $-2x$ _____ d) $7x^2$ _____

4. Draw *algebra tiles* to represent the following polynomials: Note  is yellow = + [positive] and  is red = - [negative]

Polynomial	Tiles
$x^2 - 3x + 2$	

$-x + 4$	

5. Use the 'zero principle' to combine tiles, then write the final expression:

Tiles	Simplified Expression

6. Use tiles to simplify each polynomial:

Expressions	Tiles	Answer
$3x + 2x$		$5x$
$-2x + 1 - x - 6$		
$-x^2 + x - x^2 + 5 - 2x^2 + 2$		

7. Use tiles to add the following polynomials

Polynomial	Tiles
$(x^2 - 3x + 2) + (2x^2 + 4x + 1)$	
$(-x + 4) + (-2x^2 + 3x - 2)$	

8. Adding without tiles:

Example:

To add polynomials

- 1) remove the bracket
- 2) group like terms
- 3) simplify

examples:

$$\begin{aligned}
 1) \quad & (2x + 3) + (-5x + 7) \\
 &= 2x + 3 + -5x + 7 \\
 &= (2x + -5x) + (3 + 7) \\
 &= -3x + 10
 \end{aligned}$$

$$\begin{aligned}
 2) \quad & (4x - 3) + (6x - 1) \\
 &= 4x - 3 + 6x - 1 \\
 &= (4x + 6x) + (-3 - 1) \\
 &= 10x - 4
 \end{aligned}$$

Polynomial	Answer
$(-2x^2 + 6x - 7) + (3x^2 - x - 2)$	
$(3x - 2) + (x - 1)$	

9. Use tiles to subtract the following polynomial

Polynomial	Tiles
$(x^2 - 3x + 2) - (-3x^2 - 2x + 1)$	

10. Subtracting without tiles:

Example:

To subtract polynomials

- 1) add the opposites
- 2) remove the bracket
- 3) group like terms
- 4) simplify

$$\begin{aligned}
 1) \quad & (2x + 3) - (-5x + 7) \\
 &= (2x + 3) + (5x - 7) \\
 &= 2x + 3 + 5x - 7 \\
 &= (2x + 5x) + (3 - 7) \\
 &= 7x - 4
 \end{aligned}$$

$$\begin{aligned}
 2) \quad & (4x^2 - 2x + 3) - (x^2 + 5x + 2) \\
 &= (4x^2 - 2x + 3) + (-x^2 - 5x - 2) \\
 &= 4x^2 - 2x + 3 - x^2 - 5x - 2 \\
 &= (4x^2 - x^2) + (-2x - 5x) + (3 - 2) \\
 &= 3x^2 - 7x + 1
 \end{aligned}$$

Polynomial	Answer (without tiles)
$(x^2 + 2) - (5x^2 - 1)$	
$(-7x^2 + 5) - (x^2 + x + 1)$	