Name _____ Date _____

WORKSHEET 5.4: SUBTRACTING POLYNOMIALS

Follow the steps below to subtract polynomials:

1. Add the opposite of each term of the polynomial you are subtracting.
2. Simplify by combining similar terms.
3. Add any constants.

EXAMPLES

$(4x - 7) - (3x - 4) = 4x - 7 + (-3x) + 4 = x - 3$

$(3x^2 - 4x + 1) - (-2x^2 + 7x - 9) = 3x^2 - 4x + 1 + 2x^2 + (-7x) + 9 = 5x^2 - 11x + 10$

$(-4a^2 + ab - b) - (-6a^2 - 4ab + 3b) = -4a^2 + ab - b + 6a^2 + 4ab + (-3b) = 2a^2 + 5ab - 4b$

DIRECTIONS: Find the difference.

1. $(7x - 1) - (2x - 6)$
2. $(-3x^2 + 9) - (4x^2 - 2)$
3. $(-3y^2 - 7) - (6y^2 - 9)$
4. $(4x^2 - 3xy - y) - (2x^2 - 7xy - 8)$
5. $(3x^2 + 4x - 10y^2) - (4x^2 - 5x + y^2)$
6. $(-ab + 4) - (4a^2 + 10ab - 12)$
7. $(y^2 - 7) - (3y^2 + 10y - 1)$
8. $(8a - 4c + 10) - (6a - 7b - 2c + 9)$
9. $(12a^2 - 3ab + 4) - (-12a^2 + 4ab - 1)$
10. $(y^2 - y + 1) - (3y^2 - 7y - 12)$

CHALLENGE: If you subtract two polynomials, will your answer ever be a constant? Explain your answer.

Name Answer Key Date

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EXAMPLES

$(4x - 7) - (3x - 4) = 4x - 7 + (-3x) + 4 = x - 3$

$(3x^2 - 4x + 1) - (-2x^2 + 7x - 9) = 3x^2 - 4x + 1 + 2x^2 + (-7x) + 9 = 5x^2 - 11x + 10$

$(-4a^2 + ab - b) - (-6a^2 - 4ab + 3b) = -4a^2 + ab - b + 6a^2 + 4ab + (-3b) = 2a^2 + 5ab - 4b$

DIRECTIONS: Find the difference.

1. $(7x - 1) - (2x - 6)$

   $5x + 5$

2. $(-3x^2 + 9) - (4x^2 - 2)$

   $-7x^2 + 11$

3. $(-3y^2 - 7) - (6y^2 - 9)$

   $-9y^2 + 2$

4. $(4x^2 - 3xy - y) - (2x^2 - 7xy - 8)$

   $2x^2 + 4xy - y + 8$

5. $(3x^2 + 4x - 10y^2) - (4x^2 - 5x + y^2)$

   $-x^2 + 9x - 11y^2$

6. $(-ab + 4) - (4a^2 + 10ab - 12)$

   $-4a^2 - 11ab + 16$

7. $(y^2 - 7) - (3y^2 + 10y - 1)$

   $-2y^2 - 10y - 6$

8. $(8a - 4c + 10) - (6a - 7b - 2c + 9)$

   $2a + 7b - 2c + 1$

9. $(12a^2 - 3ab + 4) - (-12a^2 + 4ab - 1)$

   $24a^2 - 7ab + 5$

10. $(y^2 - y + 1) - (3y^2 - 7y - 12)$

    $-2y^2 + 6y + 13$

CHALLENGE: If you subtract two polynomials, will your answer ever be a constant? Explain your answer.

Yes, if the coefficients of the similar terms are the same, the difference will be a constant. $(x-4)-(x-8)=4$