2.2 HOMEWORK HANDOUT: ADDING AND SUBTRACTING POLYNOMIALS

PART A

1) Add.

    a) $3x+(4x+2)$ b) $5+(6x-3)$ c) $(5x+2)+(3x+8)$ d) $(2x-9)+(-5x+1)$

2) Subtract.

    a) $7x-(2x+3)$ b) $5-(2x-3)$ c) $(6x+8)-(2x+5)$ d) $(6x-5)+(-8x+10)$

3) Simplify.

    a) $\left(-4y+6\right)+\left(-12y-8\right)$ b) $\left(x^2+2x+5\right)+\left(x^2+6x+8\right)$ c) $\left(4a^2-3a\right)-\left(6a^2+4a\right)$

    d) $\left(3m^2+7m-6\right)-\left(-m^2-4m+5\right)$ e) $\left(-9y^2-11y+2\right)+\left(3+9y^2\right)$

4) Simplify.

    a) $(5x+4)-7x$ b) $(-4n+2)-(9n-7)$ c) $\left(4x^2-7x+5\right)+\left(6x^2+9x-8\right)$

    d) $\left(7p^2-10p+19\right)-\left(-6p^2-4p+12\right)$ e) $\left(y^3+4y^2+2\right)+\left(6y^2-3y+11\right)$

    f) $\left(7-3x-4x^2\right)+\left(9x^2+x\right)$ g) $(5z-9)-\left(9z-8+z^2\right)$ h) $(a+b-c)+(4b-c+3d)$
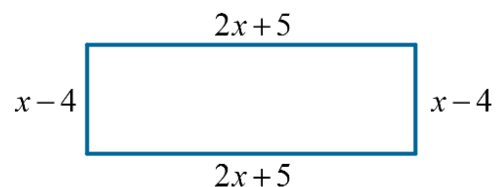
5) Simplify and evaluate for $x=2$ and $y=-3$.

    a) $(7x+3)-(-2x-4)$ b) $17y^2-\left(15y^2+3y-8\right)$ c) $(8x-4y)-(3y+6x)$

6) Simplify.
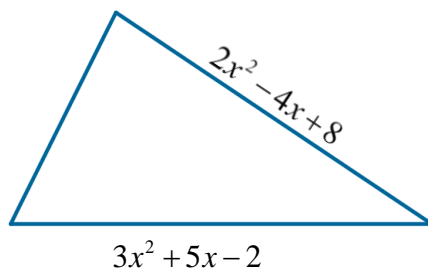
    a) $(5x+3)+(2x-1)+(-3x+8)$ b) $(3a+4)-(a-6)+(-4a+7)$

    c) $\left(3xy^2+6x-8y\right)+\left(9xy^2-2x+4y\right)$ d) $\left(\dfrac{1}{2}n^2+\dfrac{2}{3}n-\dfrac{5}{3}\right)-\left(\dfrac{3}{8}n^2-\dfrac{3}{4}n+\dfrac{7}{3}\right)$

7) A rectangle is shown on the right with algebraic expressions that represent the lengths of its sides. Determine a simplified expression that represents the perimeter of the rectangle.

$$2x+5$$

$$x-4 \qquad\qquad\qquad\qquad x-4$$

$$2x+5$$

8) A rectangle's length is represented by the expression $6x+5y$ and its width can be expressed as $4x-3y$. Determine a simplified expression to represent the perimeter of the rectangle.

9) For the triangle shown below, algebraic representations are given for the lengths of two sides. If the perimeter of the triangle is $2x^2 + x + 13$, determine a simplified expression for the length of the third side.

$2x^2 - 4x + 8$

$3x^2 + 5x - 2$

10) Javier claims that it is possible for the sum of two binomials to result in a monomial. Is Javier's claim correct? Explain.

11) Alia claims that it is possible for the difference of two binomials to result in a trinomial. Is Alia's claim correct? Explain.

12) Simplify

a) $\left(7a^2b - 6ab + 5ab^2\right) + \left(6a^2b + 2ab - 4ab^2\right)$ b) $\left(8x^2y^2 - 4x^2y + 6xy^2\right) - \left(-3x^2y^2 + 4xy^2\right)$

c) $\left(14x^3y^2 - 8x^3 + 9y^2\right) - \left(5x^3 + 4y^3 + 6x^3y^2\right)$ d) $\left(\frac{5}{4}g^2 + 2g - \frac{2}{3}\right) + \left(2 - \frac{3}{7}g + \frac{g^2}{3}\right)$

ANSWERS

1) a) $7x + 2$ b) $6x + 2$ c) $8x + 10$ d) $-3x - 8$

2) a) $5x - 3$ b) $-2x + 8$ c) $4x + 3$ d) $-2x + 5$

3) a) $-16y - 2$ b) $2x^2 + 8x + 13$ c) $-2a^2 - 7a$ d) $4m^2 + 11m - 11$ e) $-11y + 5$

4) a) $-2x + 4$ b) $-13n + 9$ c) $10x^2 + 2x - 3$ d) $13p^2 - 6p + 7$ e) $y^3 + 10y^2 - 3y + 13$

   f) $5x^2 - 2x + 7$ g) $-z^2 - 4z - 1$ h) $a + 5b - 2c + 3d$

5) a) $9x + 7$; 25   b) $2y^2 - 3y + 8$; 35   c) $2x - 7y$

6) a) $4x + 10$ b) $-2a + 17$ c) $12xy^2 + 4x - 4y$ d) $\frac{1}{8}n^2 + \frac{17}{12}n - 4$

7) $6x + 2$ **8)** $20x + 4y$ **9)** $-3x^2 + 7$

10) Yes. For example, $(2x + 7) + (3x - 7)$, which gives a result of $5x$.

11) Yes. For example, $(4x^2 + 5) - (7x + 3)$, which gives a result of $4x^2 - 7x + 2$.

12) a) $13a^2b - 4ab + ab^2$ b) $11x^2y^2 - 4x^2y + 2xy^2$ c) $8x^3y^2 - 13x^3 - 4y^3 + 9y^2$

   d) $\frac{19}{12}g^2 + \frac{11}{7}g + \frac{4}{3}$