Distributive Property Homework

Complete the following questions on a separate sheet of lined paper. Write down the title shown above and today's date. Copy down each expression and show your solution vertically.

(Questions taken from Principles of Mathematics 9, Page 166 #1, 3ce, 7ab, 8acd, 13)

1. **MC:** Which expression shows **–3(x + 5)** in expanded form?

    A] $-3x + 15$ B] $-3x + 5$ C] $-3x - 8$ D] $-3x - 15$

2. Expand using the distributive property.

    a) $5(2t - 3)$ c) $2(a^2 + 5a + 3)$
    b) $-2(y + 1)$ d) $-3(2n^2 - 8n + 5)$

3. Expand and simplify.

    a) $3(x + 2) + 4(x + 5)$ b) $2(u + v) - 3(u - v)$ c) $4(w - 2) - 2(2w + 7)$

4. Determine the missing term in each of the following expressions if it simplifies to **16x + 10**.

    a) $2(8x + \underline{\quad})$ b) $5(2x + 4) + 2(\underline{\quad} - 5)$

5. Jacob's rectangular garden is **3x + 1** metres long and **2** metres wide.

    a) Write and simplify an expression for the perimeter of Jacob's garden.
    b) Write and simplify an expression for the area of Jacob's garden.
    c) The dimensions (length and width) of Nora's garden are triple the dimensions of Jacob's garden. What are the dimensions of Nora's garden?
    d) Write and simplify an expression for the perimeter of Nora's garden.
    e) Write and simplify an expression for the area of Nora's garden.
    f) How does the perimeter of Nora's garden compare to the perimeter of Jacob's garden?
    g) How does the area of Nora's garden compare to the perimeter of Jacob's garden?

6. The cost of a vacation for an adult is **100n + 750**. The cost of a vacation for a child is **30n + 500**. Write and simplify an expression for the cost of a family with **2** adults and **3** children to take a vacation

Answers – In No Particular Order

$-2y - 2$	$P = 18x + 18$	$10t - 15$	Nine Times Bigger	$L = 9x + 3, W = 6$	$-6n^2 + 24n - 15$
-22	D	$3x$	$7x + 26$	5	Three Times Bigger
$A = 54x + 18$	$-1u + 5v$	$P = 6x + 6$	$290n + 3000$	$2a^2 + 10a + 6$	$A = 6x + 2$

Dividing by a Monomial

Recall distributive property – same idea for division

1. $-3x^2(2x^2 - 4x + 5)$	2. $\dfrac{15x^5 - 10x^4 + 5x^3}{5x^2}$
3. $(16x^4y^4 + 12x^3y^5 - 20xy^3) \div (-4xy^2)$	4. $\dfrac{-25x^3 - 20x^2 + 15x}{5x}$
5. $\left(\dfrac{1}{3x}\right)(6x^4 - 9x^3 - 3x)$	6. $\dfrac{4x^2y + 12xy - 8xy^2}{2xy}$

Dividing by a Monomial

Recall distributive property – same idea for division

1. $-3x^2(2x^2 - 4x + 5)$ $= -3x^2(2x^2) - 3x^2(-4x) - 3x^2(5)$ $= -6x^4 + 12x^3 - 15x^2$	2. $\dfrac{15x^5 - 10x^4 + 5x^3}{5x^2}$ $= \dfrac{15x^5}{5x^2} - \dfrac{10x^4}{5x^2} + \dfrac{5x^3}{5x^2}$ $= 3x^3 - 2x^2 + 1x$
3. $(16x^4y^4 + 12x^3y^5 - 20xy^3) \div (-4xy^2)$ $= \dfrac{16x^4y^4}{-4xy^2} + \dfrac{12x^3y^5}{-4xy^2} - \dfrac{20xy^3}{-4xy^2}$ $= -4x^3y^2 - 3x^2y^3 + 5y$	4. $\dfrac{-25x^3 - 20x^2 + 15x}{5x}$ $= -5x^2 - 4x + 3$
5. $\left(\dfrac{1}{3x}\right)(6x^4 - 9x^3 - 3x)$ $= 2x^3 - 3x^2 - 1$	6. $\dfrac{4x^2y + 12xy - 8xy^2}{2xy}$ $= 2x + 6 - 4y$