Multiplication of a Monomial by a Polynomial

A. Choose the correct answer:

- 1. Find the product of 3x and (x + 4):
 - a) 3x + 12c) $3x^2 + 12x$ b) $3x^2 + 4$ d) $x^3 + 12x$
- 2. What is the result of multiplying 2a by (3a² 5a + 7)?
 - a) $6a^2 10a + 14$ b) $6a^3 - 10a^2 + 14a$ c) $5a^3 + 10a^2 + 14$ d) $6a^3 + 5a^2 + 7a$
- 3. Multiply -4p by $(p^2 2p + 3)$:
 - a) $-4p^2 + 8p 12$ b) $-4p^3 + 8p^2 12p$
 - c) $4p^3 8p^2 + 12p$ d) $-4p^3 8p^2 12p$
- 4. What is the result when you multiply $\left(\frac{5x}{2}\right)$ by (2x 6)?
 - a) $5x^2 15x$ b) $5x^2 + 15x$ c) $\frac{5x}{2} - 3$ d) $10x^2 - 30x$
- 5. Multiply $2m^3$ by $(4m 5m^2 + 6)$:
 - a) $8m^4 10m^5 + 12m^3$ b) $8m^4 - 10m^5 + 12m^3$ c) $8m^4 - 10m^5 - 12m^3$ d) $8m^4 - 10m^5 + 12m^3$
- **B. Write the Missing Terms to Complete the Sentences:**
 - 1. Multiplying a monomial by a polynomial follows the _____ property.
 - 2. $(2x)(x^2 + 3x + 5) =$ _____.
 - 3. To multiply a monomial by a polynomial, we multiply the monomial with _____ term of the polynomial.
 - 4. (-3a)(2a² 5a + 4) = _____.
 - 5. $\left(\frac{5p}{2}\right)(4p-3p^2) =$ _____.
- C. Mark each sentence with a True (✔) or False (X):
 - 1. Multiply and simplify: 4x by $(x^2 3x + 5)$.

- 2. Find the product of $-2a^2$ and $(3a^2 4a + 7)$.
- 3. Multiply 5m by $(2m^2 3m + 4)$.
- 4. Expand: $\left(-\frac{x}{3}\right) \times (6x^2 9x + 12)$.
- 5. Find and simplify: $(7y^2) \times (2y^3 5y^2 + y)$.

D. Figure out the answers to these questions:

- 1. A monomial times a polynomial is always a polynomial.
- 2. Multiplying 3x by (x + 5) gives $3x^2 + 15$.
- 3. $(2a)(3a^2 4a + 5) = 6a^3 8a^2 + 10a$.
- 4. $\left(\frac{x}{2}\right)(4x^2 8x + 6)$ simplifies to $2x^3 4x^2 + 3x$.
- 5. The degree of the resulting expression is the highest sum of exponents after multiplying.

E. Challenge yourself with these questions:

- 1. Multiply $(3x^2)$ by $(2x^3 4x + 5)$ and simplify.
- 2. Find the product of $\left(-\frac{5a}{3}\right)$ and $(6a^2 9a + 12)$.
- 3. Multiply and simplify: $(2m)(m^2 3m + 7)$.
- 4. Expand: $\left(\frac{4p^2}{5}\right) \times (5p 2p^2 + 3)$.
- 5. Find and simplify the product of $\left(-\frac{2x}{3}\right)$ and $\left(9x^2 6x + 12\right)$.