Some Special Products (Special Identities)

A. Choose the correct answer:

- 1. What is the expansion of $(a + b)^2$?
 - a) $a^{2} + b^{2}$ c) $a^{2} - 2ab + b^{2}$ d) $a^{2} - b^{2}$
- 2. $(a b)^2$ is equal to:

| a) a² + 2ab + b² | b) a² – 2ab + b² |
|------------------|------------------|
| c) $a^2 - b^2$ | d) a² + b² |

- 3. The expression (a + b)(a b) simplifies to:
 - a) $a^{2} + b^{2}$ b) $a^{2} - b^{2}$ c) $a^{2} - 2ab + b^{2}$ d) $a^{2} + 2ab + b^{2}$
- 4. Which identity is used in expanding $(2x + 5)^2$?
 - a) $(x + y)^2 = x^2 + 2xy + y^2$ b) $(x + y)(x - y) = x^2 - y^2$ c) $(x - y)^2 = x^2 - 2xy + y^2$ d) None of these
- 5. Find the expansion of $(3x 2y)^2$ using identity:
 - a) $9x^{2} + 12xy + 4y^{2}$ b) $9x^{2} - 12xy + 4y^{2}$ c) $9x^{2} - 6xy + 4y^{2}$ d) $9x^{2} + 6xy + 4y^{2}$
- B. Write the Missing Terms to Complete the Sentences:
 - 1. (x + y)(x y) =_____.
 - 2. (x + y)² = _____.
 - 3. $(x y)^2 =$ _____.
 - 4. $(a + b + c)^2 = a^2 + b^2 + c^2 + _____.$
 - 5. In $(p + q)^2$, the middle term is _____.

C. Mark each sentence with a True (✔) or False (X):

- 1. (x + y)(x y) equals $x^2 y^2$.
- 2. $(a b)^2$ is equal to $a^2 b^2$.
- 3. $(x + y)^2$ expands to $x^2 + 2xy + y^2$.

- 4. (p + q)(p + q) is the same as $(p + q)^2$.
- 5. The special product $(a + b + c)^2$ has three middle terms.

D. Figure out the answers to these questions:

- 1. Expand (2a + 3b)² using identity.
- 2. Simplify (5x + 7y)(5x 7y) using a suitable identity.
- 3. Expand $(m 2n)^2$ using the formula for $(a b)^2$.
- 4. Find the value of $(x + 3)^2$ when x = 2.
- 5. Using identity, expand (2p 5q)(2p + 5q).

E. Challenge yourself with these questions:

- 1. Expand $(3p + 4q)^2$.
- 2. Simplify (7x + 2y)(7x 2y).
- 3. Find the expansion of $(a + b + c)^2$.
- 4. Expand (5m 2n)(5m + 2n).
- 5. Expand $\left(\frac{2x}{3} + \frac{3y}{4}\right)^2$ using identity.