Factorisation using identities

A. Choose the Correct Answer:

1. The factorized form of $a^2 + 2ab + b^2$ is:

a) $(a + b)(a - b)$ b) $(a - b)(a - b)$

c) $(a + b)^2$ d) $(a - b)^2$

2. The expression $a^2 - b^2$ can be factorized as:

a) $(a - b)^2$ b) $(a + b)^2$

c) $(a + b)(a - b)$ d) $(a - b)(a - b)$

3. $(x + y)^2$ is equal to:

a) $x^2 + y^2$ b) $x^2 + 2xy + y^2$

c) $x^2 - 2xy + y^2$ d) $x^2 + xy + y^2$

4. The expansion of $(x - y)^2$ gives:

a) $x^2 - 2xy + y^2$ b) $x^2 + 2xy + y^2$

c) $x^2 - y^2$ d) $x^2 + xy + y^2$

5. Which identity is used to factorize $p^2 - q^2$?

a) $(p + q)^2$ b) $(p - q)^2$

c) $(p + q)(p - q)$ d) $(p - q)(p - q)$

B. Write the Missing Terms to Complete the Sentences:

A. $(a + b)^2 = a^2 +$ _____ $+ b^2$

B. $(a - b)^2 = a^2 -$ _____ $+ b^2$

C. $(a + b)(a - b) =$ _____

D. Identity used for $x^2 - 9$ is _____

E. $(m + n)^2 = m^2 +$ _____ $+ n^2$

C. Figure out the answers to these questions:

1. Factorize $x^2 + 2xy + y^2$ using identity.
2. Factorize $9a^2 - 16b^2$ using identity.
3. Factorize $(2x + 3y)^2$.
4. Factorize $4p^2 - 25q^2$ using identity.
5. Expand and then factorize $(x - 4)^2$.

D. Mark each sentence with a True (✓) or False (✗):

1. $(a + b)(a - b) = a^2 - b^2$. _____
2. $(x - y)^2 = x^2 - 2xy + y^2$. _____
3. $(x + y)^2 = x^2 + y^2$. _____
4. $(a - b)^2 = a^2 + 2ab + b^2$. _____
5. Factorizing $16p^2 - 9q^2$ gives $(4p + 3q)(4p - 3q)$. _____

E. Challenge yourself with these questions:

1. Factorize $49x^2 - 64y^2$ using identity.
2. Factorize $(2p - 5q)^2$.
3. Factorize $25m^2 - 36n^2$ using identity.
4. Expand and factorize $(x + 7y)^2$.
5. Factorize $81a^2 - 100b^2$.