Factorization of Quadratic Trinomials

A. Choose the Correct Answer:

1. The factorized form of $x^2 + 5x + 6$ is:

a) $(x + 3)(x + 2)$ b) $(x – 3)(x + 2)$

c) $(x + 6)(x – 1)$ d) $(x + 2)(x – 2)$

2. The factorized form of $x^2 – 7x + 10$ is:

a) $(x – 5)(x + 2)$ b) $(x – 2)(x – 5)$

c) $(x + 5)(x + 2)$ d) $(x – 5)(x – 2)$

3. Which pair of numbers multiplies to 12 and adds to 7?

a) 3 and 4 b) 6 and 2

c) 1 and 12 d) 7 and 5

4. The factorized form of $x^2 + 11x + 24$ is:

a) $(x + 3)(x + 8)$ b) $(x + 4)(x + 6)$

c) $(x + 7)(x + 4)$ d) $(x + 2)(x + 12)$

5. The quadratic trinomial $x^2 + 9x + 20$ factorizes to:

a) $(x + 4)(x + 5)$ b) $(x – 4)(x – 5)$

c) $(x + 5)(x + 5)$ d) $(x + 2)(x + 10)$

B. Write the Missing Terms to Complete the Sentences:

1. To factorize $x^2 + bx + c$, find two numbers whose _____ is b and _____ is c

2. $x^2 + 6x + 9 = (x +$ _____$)(x +$ _____$)$

3. $x^2 – 8x + 15 = (x –$ _____$)(x –$ _____$)$

4. The middle term is obtained by _____ the two numbers

5. Quadratic trinomials have _____ terms

C. Figure out the answers to these questions:

1. Factorize $x^2 + 7x + 10$.

2. Factorize $x^2 + 13x + 40$.

3. Factorize $x^2 – 5x – 24$.

4. Factorize $x^2 – 3x – 28$.

5. Factorize $x^2 + 12x + 32$.

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

1. A quadratic trinomial has degree 2. _____
2. To factorize $x^2 + 5x + 6$, we need two numbers that add to 6. _____
3. In factorization, the product of the two numbers must equal the constant term. _____
4. $x^2 + 2x + 1 = (x + 1)(x + 1)$. _____
5. Quadratic trinomials cannot always be factorized. _____

E. Challenge yourself with these questions:

1. Factorize $x^2 + 10x + 21$.
2. Factorize $x^2 – 9x + 18$.
3. Factorize $x^2 + 14x + 45$.
4. Factorize $x^2 – 11x + 30$.
5. Factorize $x^2 + 5x – 24$.