



# Practice Worksheet on Algebra

Generated for ~~XXXX~~ - Based on resource uploaded by user.

[Generate one yourself at LitGrades](#)

Subject: Mathematics

Date: 3/27/2025

## Long Answer Questions

1. Expand  $(x+5)^2$  using the formula for the square of a binomial.
2. Factor the expression  $x^2 - 25$  using the difference of squares formula.
3. Expand  $(y-3)^2$  using the formula for the square of a binomial.
4. Simplify the expression  $(x+4)(x-4)$ .
5. Factor the expression  $x^2 + 6x + 9$
6. Factor the expression  $a^3 + 8$ .
7. Factor the expression  $4x^2 - 12x + 9$ .

8. Factor the expression  $27x^3 - 1$ .

## Multiple Choice Questions

1. What is the expansion of  $(x+4)^2$ ?

- a)  $x^2 + 4$
- b)  $x^2 + 8x + 16$
- c)  $x^2 + 4x + 16$
- d)  $x^2 - 8x + 16$

2. What is the factorization of  $x^2 - 25$ ?

- a)  $(x+1)(x-2)$
- b)  $(x+5)(x-5)$
- c)  $(x-5)(x-5)$
- d)  $(x+5)(x+5)$

3. What is the expansion of  $(x-3)^2$ ?

- a)  $x^2 - 6x + 9$
- b)  $x^2 + 6x - 9$
- c)  $x^2 - 6x + 9$
- d)  $x^2 + 6x + 9$

4. What is the factorization of  $2x^2 - 9x - 5$ ?

- a)  $(2x+5)(x-2)$
- b)  $(2x+1)(x-5)$
- c)  $(2x-1)(x+5)$
- d)  $(2x-5)(x+2)$

5. What is the expansion of  $(x+3)^3$ ?

- a)  $(x+3)^3$
- b)  $(x+3)^2$
- c)  $x^3 + 27$
- d)  $x^3 + 9x^2 + 27x + 27$

6. What is the factorization of  $a^2-10a-11$ ?

- a)  $(a+2)(a-1)$
- b)  $(a-11)(a+1)$
- c)  $(a+11)(a-1)$
- d)  $(a+11)(a+1)$

7. What is the factorization of  $x^3 + 125$ ?

- a)  $(x+5)(x^2-5x+25)$
- b)  $(x-5)(x^2+5x+25)$
- c)  $(x+5)(x^2+5x+25)$
- d)  $(x-5)(x^2-5x+25)$

8. What is the expansion of  $(a-2)^3$ ?

- a)  $a^3-6a^2+12a-8$
- b)  $a^3-6a^2+12a-8$
- c)  $a^3+6a^2+12a+8$
- d)  $a^3+6a^2-12a+8$

# Answer Key

## Long Answer Questions - Expected Responses

1. Expand  $(x+5)^2$  using the formula for the square of a binomial.

Expected Answer: Apply the formula  $(a+b)^2 = a^2+2ab+b^2$  to expand the expression.

2. Factor the expression  $x^2 - 25$  using the difference of squares formula.

Expected Answer: Use the difference of squares formula  $a^2 - b^2 = (a+b)(a-b)$ .

3. Expand  $(y-3)^2$  using the formula for the square of a binomial.

Expected Answer: Use the formula  $(a-b)^2 = a^2-2ab+b^2$  to expand the expression.

4. Simplify the expression  $(x+4)(x-4)$ .

Expected Answer: Apply the formula  $(a+b)(a-b)=a^2-b^2$  to simplify the expression.

5. Factor the expression  $x^2 + 6x + 9$

Expected Answer: Use the formula for factoring a perfect square trinomial.

6. Factor the expression  $a^3 + 8$ .

Expected Answer: Use the formula for the sum of cubes.

7. Factor the expression  $4x^2 -12x + 9$ .

Expected Answer: Use the formula for factoring a perfect square trinomial.

8. Factor the expression  $27x^3 - 1$ .

Expected Answer: Use the formula for the difference of cubes.

## Multiple Choice Questions – Correct Answers

1. What is the expansion of  $(x+4)^2$ ?

Correct Answer:  $x^2 + 8x + 16$

2. What is the factorization of  $x^2 - 25$ ?

Correct Answer:  $(x+5)(x-5)$

3. What is the expansion of  $(x-3)^2$ ?

Correct Answer:  $x^2 - 6x + 9$

4. What is the factorization of  $2x^2 - 9x - 5$ ?

Correct Answer:  $(2x+1)(x-5)$

5. What is the expansion of  $(x+3)^3$ ?

Correct Answer:  $(x+3)^3$

6. What is the factorization of  $a^2 - 10a - 11$ ?

Correct Answer:  $(a-11)(a+1)$

7. What is the factorization of  $x^3 + 125$ ?

Correct Answer:  $(x+5)(x^2 - 5x + 25)$

8. What is the expansion of  $(a-2)^3$ ?

Correct Answer:  $a^3 - 6a^2 + 12a - 8$