

Algebra 1 · Adding, Subtracting and Multiplying Polynomials · Quiz

Common Core A-APR.A.1, A-SSE.A.2 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

Answer these 10 multiple-choice questions on degree, adding, subtracting and multiplying polynomials, and special products. Each question has exactly one correct answer, and every explanation names the common mistake.

Algebra 1 Common Core: **A-APR.A.1 · A-SSE.A.2**

Questions

Question 1

What is the degree of $5x^4 - 3x^2 + x^6 - 9$?

- A. 4
- B. 6
- C. 9
- D. 5

Question 2

Which expression is $7 + 2x^3 - x$ in standard form?

- A. $2x^3 - x + 7$
- B. $2x^3 + x + 7$
- C. $2x^3 - x - 7$
- D. $-2x^3 - x + 7$

Question 3

Add $(3x^2 - 4x + 1) + (x^2 + 6x - 5)$.

- A. $4x^4 + 2x - 4$
- B. $4x^2 + 10x - 4$
- C. $4x^2 + 2x + 4$
- D. $4x^2 + 2x - 4$

Question 4

Subtract $(5x^2 - 2x + 7) - (2x^2 + 3x - 4)$.

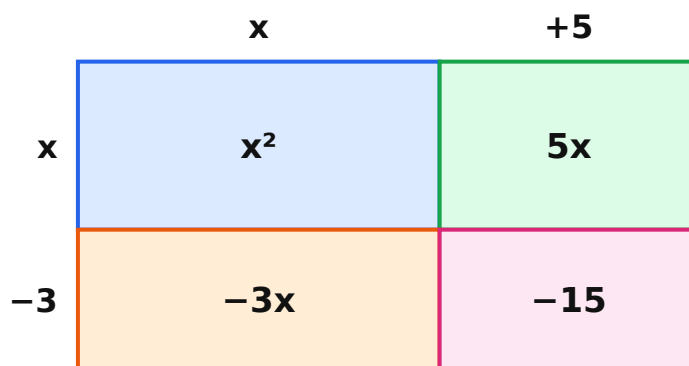
	x^2 terms	x terms	constants
first	5	-2	7
second	2	3	-4

The two polynomials by columns.

- A. $3x^2 - 5x + 11$
- B. $3x^2 + x + 3$
- C. $3x^2 - 5x + 3$
- D. $3x^2 + x + 11$

Question 5

The area model shows $(x+5)(x-3)$. Which polynomial is the product?



Area model.

- A. $x^2 + 2x - 15$
- B. $x^2 + 8x - 15$
- C. $x^2 - 2x - 15$
- D. $x^2 + 2x + 15$

Question 6

Expand $(2x-7)^2$.

- A. $4x^2 - 49$
- B. $4x^2 - 28x + 49$
- C. $4x^2 + 28x + 49$
- D. $4x^2 - 14x + 49$

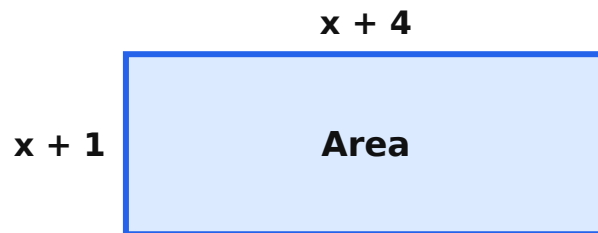
Question 7

Multiply $(4x+3)(4x-3)$.

- A. $16x^2+9$
- B. $8x^2-9$
- C. $16x^2-24x+9$
- D. $16x^2-9$

Question 8

A rectangle has length $x+4$ and width $x+1$. Which polynomial gives its area?



Rectangle.

- A. x^2+4
- B. $4x+10$
- C. x^2+5x+4
- D. x^2+3x+4

Question 9

Which method gives 63×57 correctly?

- A. $60^2=3,600$
- B. $60^2+3^2=3,609$
- C. $60^2-2(3)(60)=3,240$
- D. $60^2-3^2=3,591$

Question 10

Which statement about polynomials is true?

- A. The degree of a polynomial is its number of terms.
- B. Dividing a polynomial by x always gives a polynomial.
- C. The product of two polynomials is always a polynomial.
- D. Every polynomial must have at least two terms.

Answer key

1. **B** - The degree is the largest exponent, which is 6 in x^6 . The first term listed is not necessarily the highest power.
2. **A** - Standard form orders terms from the highest power down, and each term keeps its own sign.
3. **D** - Add coefficients of like terms and keep the exponents: $3+1=4$, $-4+6=2$, $1-5=-4$.
4. **A** - Distribute the negative to all three terms. Forgetting to change the signs of $3x$ and -4 gives the wrong answers.
5. **A** - Add the cells: $5x-3x=2x$. The constant term is $5 \cdot (-3) = -15$.
6. **B** - The middle term is $-2(2x)(7) = -28x$. Squaring each term separately drops it and gives $4x^2+49$.
7. **D** - This is a sum times a difference, so the middle terms cancel: $(4x)^2-3^2=16x^2-9$.
8. **C** - Area is length times width. The middle term is $1x+4x=5x$. The expression $4x+10$ is the perimeter, not the area.
9. **D** - $63 \times 57 = (60+3)(60-3)$ fits the difference of squares pattern, so the product is $3600-9=3591$.
10. **C** - Polynomials are closed under multiplication. A monomial like $5x^2$ is a polynomial with one term, and $x \div x^2$ gives x^{-1} , which is not.

Remember:

- The degree of a polynomial is its largest exponent; standard form lists terms from highest to lowest power.
- To subtract polynomials, change the sign of every term in the second one, then combine like terms.
- FOIL and the box method are two ways to record the same four products of two binomials.
- Special products: $(a+b)^2 = a^2 + 2ab + b^2$, $(a-b)^2 = a^2 - 2ab + b^2$, $(a+b)(a-b) = a^2 - b^2$.
- Polynomials are closed under addition, subtraction and multiplication.