

Unit 7 Test — Answer Key

Adding, Subtracting, Multiplying & Factoring Polynomials

FOR TEACHER / SELF-CHECK USE

This test was written to cover Unit 7's topics (adding, subtracting, multiplying, and factoring polynomials including GCF, trinomials, and special products). Every solution below has been independently verified.

1	Combine like terms: $(3x^2+x^2) + (2x-4x) + (-5+7) = 4x^2 - 2x + 2$. Answer: B — $4x^2 - 2x + 2$
2	Distribute the subtraction: $5x^2-3x+1 - 2x^2-4x+6 = 3x^2 - 7x + 7$. Answer: B — $3x^2 - 7x + 7$
3	FOIL: $x^2 - 5x + 3x - 15 = x^2 - 2x - 15$. Answer: $x^2 - 2x - 15$
4	$(a+b)^2 = a^2+2ab+b^2$: $x^2 + 2(4)(x) + 16 = x^2 + 8x + 16$. Answer: C — $x^2 + 8x + 16$
5	Difference of squares: $(a-b)(a+b) = a^2-b^2$. $(2x)^2 - 3^2 = 4x^2 - 9$. Answer: A — $4x^2 - 9$
6	GCF of $6x^3$, $9x^2$, $12x$ is $3x$. $6x^3 \div 3x = 2x^2$, $-9x^2 \div 3x = -3x$, $12x \div 3x = 4$. Answer: $3x(2x^2 - 3x + 4)$
7	Need two numbers multiplying to 12 and adding to 7: 3 and 4. Answer: A — $(x + 3)(x + 4)$
8	Need two numbers multiplying to -15 and adding to -2: -5 and 3. Answer: A — $(x - 5)(x + 3)$
9	Multiply $a \cdot c = 2(12) = 24$; need two numbers multiplying to 24 and adding to 11: 3 and 8. $2x^2+3x+8x+12 = x(2x+3)+4(2x+3) = (2x+3)(x+4)$. Answer: $(2x + 3)(x + 4)$
10	Factor $x^2+5x-24$: need two numbers multiplying to -24 and adding to 5: 8 and -3. $x^2+5x-24 = (x+8)(x-3)$. Since length = $(x+8)$, width = $(x-3)$. Answer: Width = $(x - 3)$