

Algebra 1 · Adding, Subtracting and Multiplying Polynomials · Test Answer Key

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

Use this key to grade the polynomials test out of 20 points. Each solution lists the working a full-credit answer shows, followed by a scoring guide. Accept any equivalent correct method.

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

Question 1: Standard form and degree (2 points)

- a. $-5x^3 - x^2 + 2x + 4$
- b. Degree **3**, leading coefficient -5 .

Scoring: 1 point for the correct order with correct signs; 1 point for both the degree and the leading coefficient.

Question 2: Add and subtract (2 points)

- a. $4x^2 + 3x + 6$
- b. Distribute the negative: $3x^3 + 5x - 8 - x^3 + 2x^2 - 5x - 1$. The x terms cancel. Result:
 $2x^3 + 2x^2 - 9$.

Scoring: 1 point each part. In part (b), award the point only if the sign of every term of the second polynomial was changed.

Question 3: Subtract with two variables (2 points)

$$7a^2b - 3ab + 4b^2 - 2a^2b - ab + 6b^2$$

Combine like terms: $5a^2b - 4ab + 10b^2$.

$$5a^2b - 4ab + 10b^2$$

Scoring: 1 point for distributing the negative sign correctly; 1 point for the combined result.

Question 4: Multiply polynomials (2 points)

- a. $-12x^3 + 8x^2 - 24x$
- b. $x^3 + 4x^2 - 2x - 6x^2 - 24x + 12$, which combines to $x^3 - 2x^2 - 26x + 12$.

Scoring: 1 point each part. Part (b) needs all six products and correct combining.

Question 5: Multiply two binomials (2 points)

Cells: $3x^2$, $4x$, $-15x$, -20 . Combine $4x-15x=-11x$.

$$3x^2-11x-20$$

	3x	+4
x	$3x^2$	$4x$
-5	$-15x$	-20

Completed model.

Scoring: 1 point for the four correct cells; 1 point for combining like terms into the answer.

Question 6: Special products (2 points)

a. $(4x)^2-2(4x)(3)+3^2=16x^2-24x+9$

b. $(6x)^2-5^2=36x^2-25$

Scoring: 1 point each part. No credit for $16x^2+9$ in part (a).

Question 7: Community garden (3 points)

a. $(2x+3)(x+5)=2x^2+10x+3x+15=2x^2+13x+15$ square feet.

b. $2(36)+13(6)+15=72+78+15=165$. Check: $15 \times 11 = 165$ square feet.

c. $2[(2x+3)+(x+5)]=2(3x+8)=6x+16$ feet.

	$2x + 3 \text{ ft}$
$x + 5 \text{ ft}$	$A = 2x^2 + 13x + 15$

Area of the garden.

Scoring: 1 point per part.

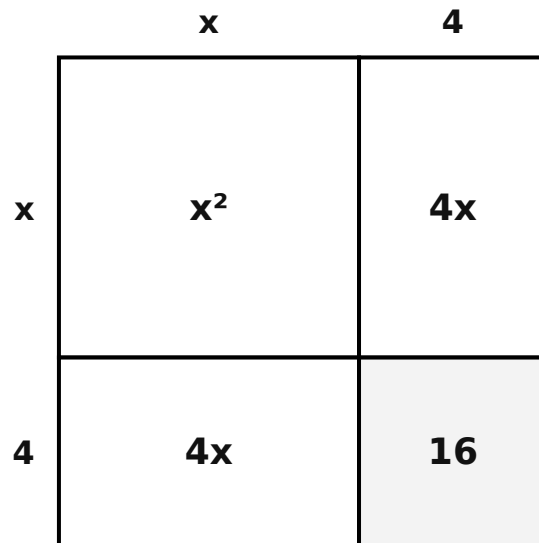
Question 8: Bakery profit (3 points)

- a. $P = (-x^2 + 60x) - (12x + 150) = -x^2 + 60x - 12x - 150$, so $P = -x^2 + 48x - 150$.
b. $-100 + 480 - 150 = 230$. Check: $500 - 270 = 230$. The profit is **\\$230**.

Scoring: part (a) 1 point for subtracting the whole cost (distributing the negative) and 1 point for the simplified result; part (b) 1 point.

Question 9: Explain the error (2 points)

- a. Left side: $(1+4)^2 = 25$. Liam's right side: $1+16 = 17$. Since $25 \neq 17$, the result is wrong.
b. $x^2 + 8x + 16$. The square has parts x^2 , $4x$, $4x$ and 16 .



The four regions.

Scoring: 1 point for a correct numerical check; 1 point for the correct expansion.

Total
20 points