

Algebra 1 · Adding, Subtracting and Multiplying Polynomials · Worksheet

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

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

These 23 problems practice naming and writing polynomials, adding and subtracting them, and multiplying with the distributive property, FOIL, the box method and the special products (Common Core A-APR.A.1 and A-SSE.A.2).

The problems start with degree and standard form and get harder. The last six are word problems with areas, profit and mental math.

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

Problem 1: Degree and terms

For $4x^3 - 7x + 2$, state the degree, the leading coefficient and the number of terms. Then classify it as a monomial, binomial or trinomial.

Problem 2: Standard form

Write $5 - 2x^2 + 6x + x^3$ in standard form.

Problem 3: Classify polynomials

Name each polynomial by its number of terms and its degree.

- a. $7x^2$
- b. $x^2 - 9$
- c. $2x^3 + x - 1$

Problem 4: Add polynomials

Add $(3x^2 + 5x - 4) + (2x^2 - 8x + 9)$.

	x^2 terms	x terms	constants
first	3	5	-4
second	2	-8	9
sum	?	?	?

Fill in the sum row.

Problem 5: Subtract polynomials

Subtract $(7x^2 - 3x + 1) - (4x^2 + 2x - 6)$.

Problem 6: Two variables

Add $(x^2 + 4xy - 3y^2) + (5x^2 - 2xy + y^2)$.

Problem 7: Subtract with a missing term

Subtract $(6a^3 - 2a + 5) - (a^3 + 4a^2 - 2a - 3)$ and write the answer in standard form.

Problem 8: Multiply monomials

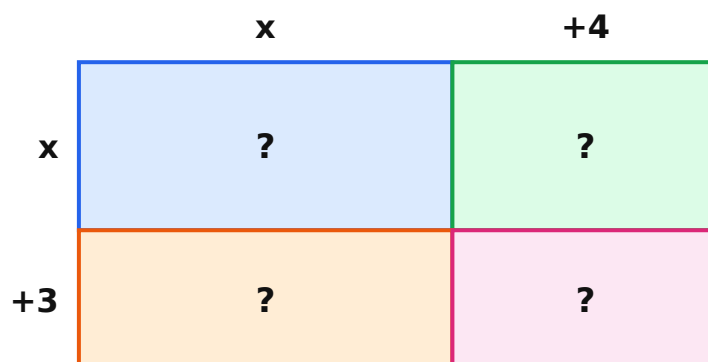
Multiply $(3x^2)(-4x^5)$.

Problem 9: Distribute a monomial

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

Problem 10: Box method

Use the area model to multiply $(x + 4)(x + 3)$.



Fill in the four cells.

Problem 11: FOIL with a negative

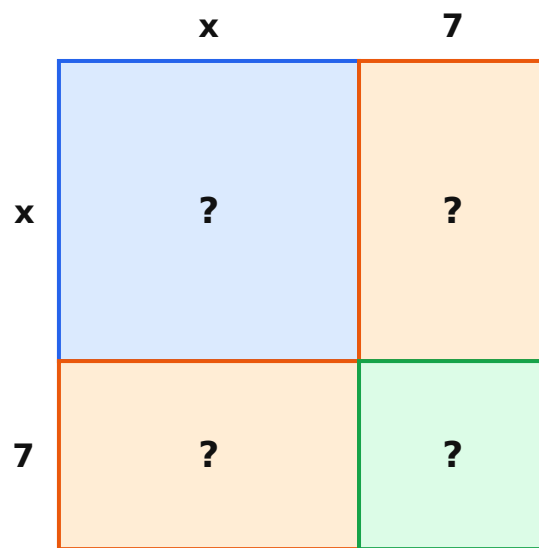
Multiply $(2x-5)(x+6)$.

Problem 12: FOIL, both negative

Multiply $(3x-2)(4x-7)$.

Problem 13: Square of a binomial

Expand $(x+7)^2$. The figure shows a square with side $x+7$.



Find the area of each part.

Problem 14: Square of a difference

Expand $(3x-5)^2$.

Problem 15: Difference of squares

Multiply $(2x+9)(2x-9)$.

Problem 16: Binomial times trinomial

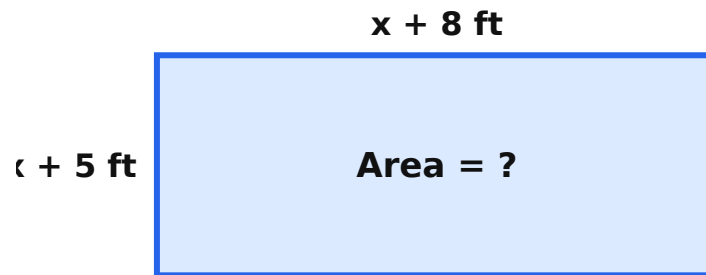
Multiply $(x-3)(x^2+2x-5)$.

Problem 17: Closure

Add $(4x^2+3x)+(-4x^2+5)$. State the degree of the sum and explain whether the result is still a polynomial.

Problem 18: Garden area

Maya plans a rectangular garden that is $x+8$ feet long and $x+5$ feet wide. Write a polynomial for its area, then find the area when $x=4$.



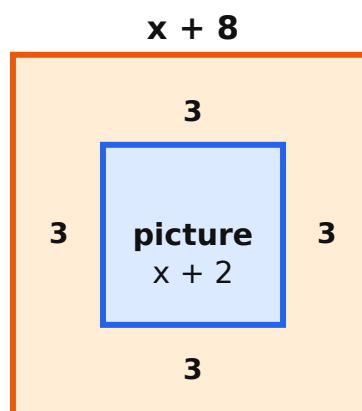
Maya's garden.

Problem 19: Profit polynomial

The school store sells x dozen cookies. Revenue is $R = -x^2 + 50x$ dollars and cost is $C = 10x + 120$ dollars. Write a polynomial for the profit $P = R - C$, then find the profit for 10 dozen cookies.

Problem 20: Picture frame

Jamal puts a square photo with side $x+2$ inches into a square frame with outer side $x+8$ inches. Write a simplified polynomial for the area of the frame itself (the border), then find it when $x=4$.



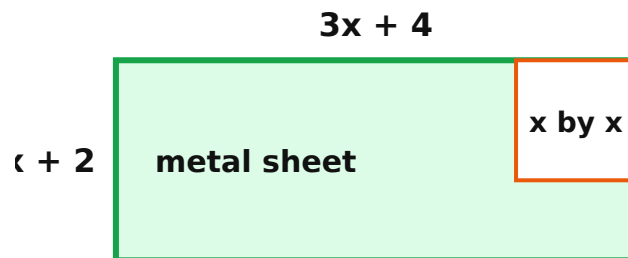
The border is 3 inches wide.

Problem 21: Mental math

Priya calculates 52×48 in her head by writing it as a product of a sum and a difference. Show her steps and find the product.

Problem 22: Metal sheet with a cutout

A metal sheet is $3x+4$ inches long and $x+2$ inches wide. A square with side x inches is cut from one corner. Write a simplified polynomial for the area that remains, then evaluate it for $x=3$.



Sheet with a square cutout.

Problem 23: Find the error

Noah writes $(x+5)^2 = x^2 + 25$. Test his answer with $x=1$, explain his mistake and write the correct expansion.