

Algebra 1 - Adding, Subtracting and Multiplying Polynomials - Worksheet

Common Core A-APR.A.1 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This worksheet has 20 problems on adding, subtracting, and multiplying polynomials, aligned to Common Core A-APR.A.1. You will classify polynomials, add and subtract them, multiply with the distributive property, FOIL, and area models, and use special products in geometry and business situations. Early problems check one skill at a time; the final six put the skill inside real situations. Write each step on paper before you look at the answer key.

Algebra 1 · Common Core State Standards: **A-APR.A.1**

Exercise 1 - Name and degree

Name the polynomial $5x^3 - 2x + 7$ by its number of terms and state its degree.

Exercise 2 - Standard form

Write $4x - x^3 + 2 + 3x^2$ in standard form and state the leading coefficient.

Exercise 3 - Add polynomials

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

Exercise 4 - Subtract polynomials

Subtract $(5x^2 + 3x - 2) - (2x^2 - x + 6)$.

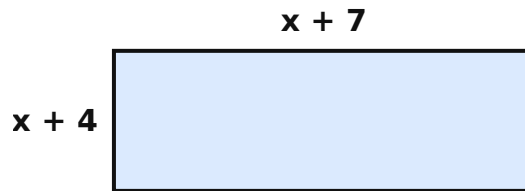
Exercise 5 - Two variables

Add $(4a + 3b) + (2a - 5b)$.

Exercise 6 - Monomial times polynomial

Multiply $3x(2x^2 - 5x + 1)$.

Exercise 7 - Binomial product



A rectangle with these side lengths.

Multiply $(x+4)(x+7)$.

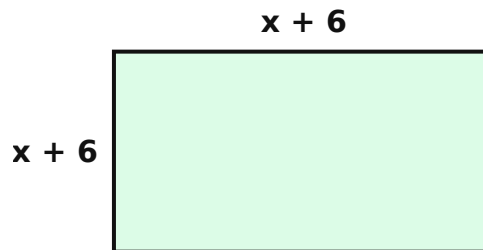
Exercise 8 - Binomial with a negative

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

Exercise 9 - FOIL

Multiply $(2x+1)(3x-4)$ using FOIL.

Exercise 10 - Square of a binomial



A square with side $x+6$.

Expand $(x+6)^2$.

Exercise 11 - Square with subtraction

Expand $(x-5)^2$.

Exercise 12 - Difference of squares

Multiply $(x+8)(x-8)$.

Exercise 13 - Binomial times trinomial

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

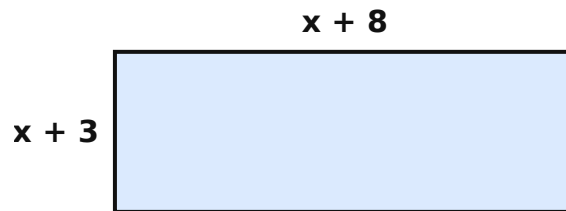
Exercise 14 - Closure

Show that the sum of x^2+1 and $-x^2+3x$ is a polynomial.

Exercise 15 - Check by substitution

Verify that $(x+3)(x+2)=x^2+5x+6$ by substituting $x=4$.

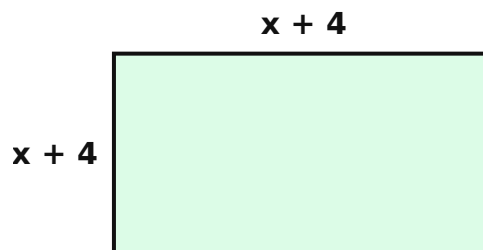
Exercise 16 - Rectangle area



A rectangular garden.

A garden has length $x+8$ feet and width $x+3$ feet. Write its area as a polynomial in standard form and find the area when $x=5$.

Exercise 17 - Square patio



A square patio.

A square patio has side length $x+4$ feet. Write its area as a polynomial and find the area when $x=6$.

Exercise 18 - Profit polynomial

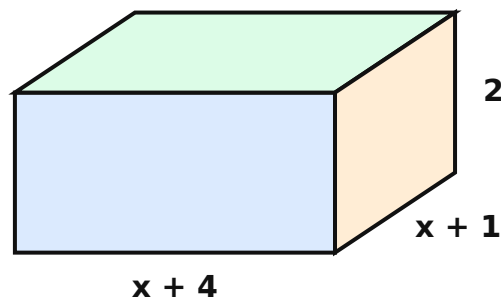
Item	Expression
Revenue R	$-2x^2 + 60x$
Cost C	$10x + 100$

A school store has revenue $R = -2x^2 + 60x$ dollars and cost $C = 10x + 100$ dollars when it sells x items. Write the profit $P = R - C$ and find the profit for $x = 10$.

Exercise 19 - Triangle perimeter

A triangle has sides $2x+3$, $x+7$, and $3x-2$ inches. Write the perimeter as a simplified polynomial and find it when $x = 4$.

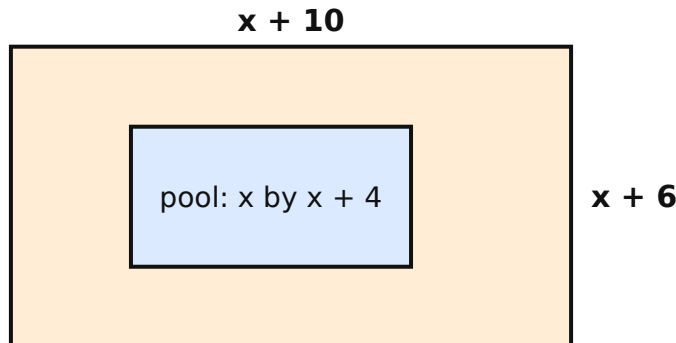
Exercise 20 - Box volume



A box (not to scale).

A box has length $x+4$, width $x+1$, and height 2 (all in inches). Write the volume as a polynomial and find it when $x = 3$.

Exercise 21 - Deck around a pool



A pool surrounded by a deck.

A rectangular pool measures x feet by $x+4$ feet. A deck surrounds it so that the whole area, pool plus deck, measures $x+6$ feet by $x+10$ feet. Write the deck's area as a polynomial and find it when $x = 5$.