

Combining and Multiplying Polynomials

Grade 9 – Algebra 1 math · Test · Standards: A-APR.A.1, A-SSE.A.2

Name: _____ Date: _____ Class: _____

This test has 9 questions worth 20 points. Allow 45 minutes and work without notes or a calculator. Write every polynomial answer in standard form, and show your steps so that partial credit can be awarded.

Standards: A-APR.A.1, A-SSE.A.2 · **Level:** Grade 9 Algebra 1

Time: 45 minutes · 9 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Standard Form (2 points)

Write $5x - 2x^3 + 9x^2 - 4$ in standard form. State its degree and its leading coefficient.

Question 2 Add Polynomials (2 points)

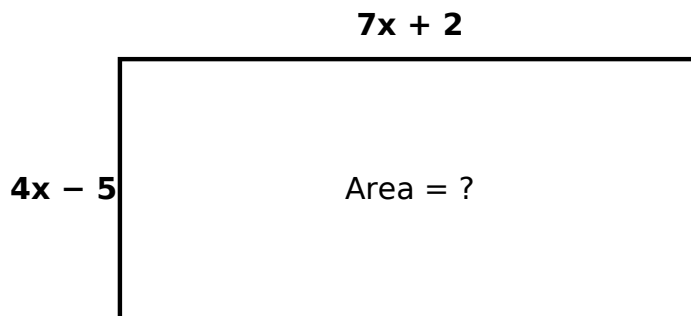
Simplify $(6x^2 - 4x + 7) + (-2x^2 + 9x - 3)$.

Question 3 Subtract Polynomials (2 points)

Simplify $(8x^2 + 3x - 5) - (5x^2 - 6x + 2)$.

Question 4 Area of a Rectangle (2 points)

A banner for the robotics fair is a rectangle $7x + 2$ inches long and $4x - 5$ inches wide. Express its area in square inches as a polynomial in standard form.



Rectangle with the given side lengths.

Question 5 Trinomial Times Binomial (3 points)

Multiply $(x - 3)(x^2 + 5x - 2)$ and write the answer in standard form.

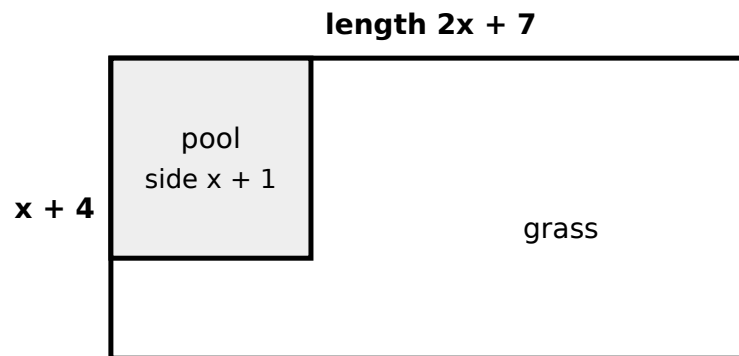
Question 6 Special Products (2 points)

Expand.

- a. $(4x - 3)^2$ (1 point)
- b. $(2x + 7)(2x - 7)$ (1 point)

Question 7 Grass Around the Pool (3 points)

A yard is $2x + 7$ feet long and $x + 4$ feet wide. A square pool with side $x + 1$ feet sits in one corner, and the rest of the yard is grass.



A yard with a square pool.

- a. Write the grass area as a polynomial in simplest form. (2 points)
- b. Find the grass area when $x = 5$. (1 point)

Question 8 Mental Math with Algebra (2 points)

Use a special product to find each value without a calculator, and show the structure.

- a. 38×42 (1 point)
- b. 71^2 (1 point)

Question 9 Explain the Error (2 points)

Dev claims that $(x + 5)^2 = x^2 + 25$. Explain his error and write the correct expansion.