

Algebra 1
Classifying Polynomials

Classifying Polynomials | A1-U08-P01
96 problems · Four activity formats

01	Answer Bank Challenge	24 tasks
02	Grid Rounds	24 tasks
03	Match & Move	24 cards
04	Error Analysis & Strategy	24 tasks
05	Quick Answer Key	96 answers
06	Full Worked Solutions	96 solutions
07	Teacher / Parent Use Guide	included
08	Terms of Use & License	included

Topic focus
This topic is a focused set of 96 practice tasks on Classifying Polynomials.
8 PDFs and a README; 64 buyer pages.

Algebra 1

Classifying Polynomials

Name: _____ Date: _____ Class: _____

Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. Give the whole requested response, including any reasoning the question asks for.

Is the displayed expression a polynomial in x? Support the decision with its exponent structure. Work with the variable x. Consider $7x^4 - 3x^2 + x - 9$. _____ _____	Classify the expression as a polynomial or a nonexample in t, and identify the decisive term. Work with the variable t. Consider $5t^3 - 2t^{-1}$. _____ _____
Does this formula define a polynomial in z on the real numbers? Explain the role of the denominator. Work with the variable z. Consider $z^2 + \frac{6}{z}$. _____ _____	A classmate rejects this expression because $\sqrt{2}$ is irrational. Decide whether the classmate is correct. Work with the variable x. Consider $\sqrt{2}x^3 - 4x + 1$. _____ _____
When q is the stated variable, is -13 a polynomial? State the exponent interpretation that applies. _____ _____	Determine whether fractional coefficients prevent this from being a polynomial in m. Work with the variable m. Consider $(\frac{3}{5})m^5 - (\frac{7}{2})m^2 + 8$. _____ _____

Algebra 1

Classifying Polynomials

Name: _____ Date: _____ Class: _____

Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: It is the nonzero constant 3, so its degree is 0 and leading coefficient is 3.

Cancel the top-degree pair and combine the next degree before stating the leading information. Use all originally requested signed terms/classification or degree/leading-coefficient information as the matching response, including the simplified polynomial when requested. Retain the original explanation.

Work with the variable d .

Consider $4d^9 + 2d^4 - 6d - 4d^9 + 3d^4$.

Your response: _____

Incoming: The leading coefficient is -2 and the degree is 8.

State the degree and leading coefficient, and identify the tempting but irrelevant large coefficient. Use all originally requested signed terms/classification or degree/leading-coefficient information as the matching response, including the simplified polynomial when requested. Retain the original explanation.

Work with the variable x .

Consider $x^{10} - 1000x^9 + 2$.

Your response: _____

Incoming: The polynomial is $(\frac{1}{3})t^9 - 2t^4 + 1000$; degree 9, leading coefficient $\frac{1}{3}$.

Give the degree and leading coefficient, then write the complete coefficient vector down through the constant term. Use all originally requested signed terms/classification or degree/leading-coefficient information as the matching response, including the simplified polynomial when requested. Retain the original explanation.

Work with the variable w .

Consider $-4w^7 + 3w^4 - w + 6$.

Your response: _____

Incoming: Degree 7, leading coefficient -4 ; vector $[-4, 0, 0, 3, 0, 0, -1, 6]$.

Use the nonzero-coefficient specification to write the leading term and determine the degree and leading coefficient.

Work with the variable n .

All other coefficients: 0

Power	Given coefficient
12	-2
5	700
0	-1

Your response: _____

Algebra 1

Classifying Polynomials

Name: _____ Date: _____ Class: _____

Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

Combine like powers before determining the degree and leading coefficient. Choose a simplification method before naming the degree: collect coefficients in a descending-power list/table, or combine visible like-power groups directly. Explain your choice for this expression, use it, and then determine the requested degree and leading coefficient from the surviving terms.

Work with the variable x .

Consider $5x^4 - 3x^2 + 7x - 5x^4$.

Which term becomes leading after simplification, and what degree follows? Choose a simplification method before naming the degree: collect coefficients in a descending-power list/table, or combine visible like-power groups directly. Explain your choice for this expression, use it, and then determine the requested degree and leading coefficient from the surviving terms.

Work with the variable y .

Consider $2y^6 + y^3 - 4 - 2y^6 + 7y$.

Classifying Polynomials

Full Worked Solutions - excerpt

Worked example

Problem. When q is the stated variable, is -13 a polynomial? State the exponent interpretation that applies.

Answer. Yes. It is the constant polynomial $-13q^0$.

Explanation and check.

A nonzero constant is a polynomial of degree 0 because it can be viewed as a coefficient times q^0 .

Worked example

Problem. Is the displayed expression a polynomial in x ? Support the decision with its exponent structure.

Work with the variable x .

Consider $7x^4 - 3x^2 + x - 9$.

Answer. Yes. Every exponent of x is a nonnegative integer.

Explanation and check.

The powers are 4, 2, 1, and 0, so the expression meets the polynomial exponent condition.