Mathematics Class Slides

Bronx Early College Academy

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GQ: How do we graph polynomials?

CCSS: HSS.CP.B.6 Understand polynomial functions 11.2

Do Now: Graph the function $f(x) = x^4 - 4x^2 + 3$

1. What is the degree of the function?
2. What is the sign of its leading coefficient?
3. What is its constant term?

Lesson: Features of polynomial functions p. 288

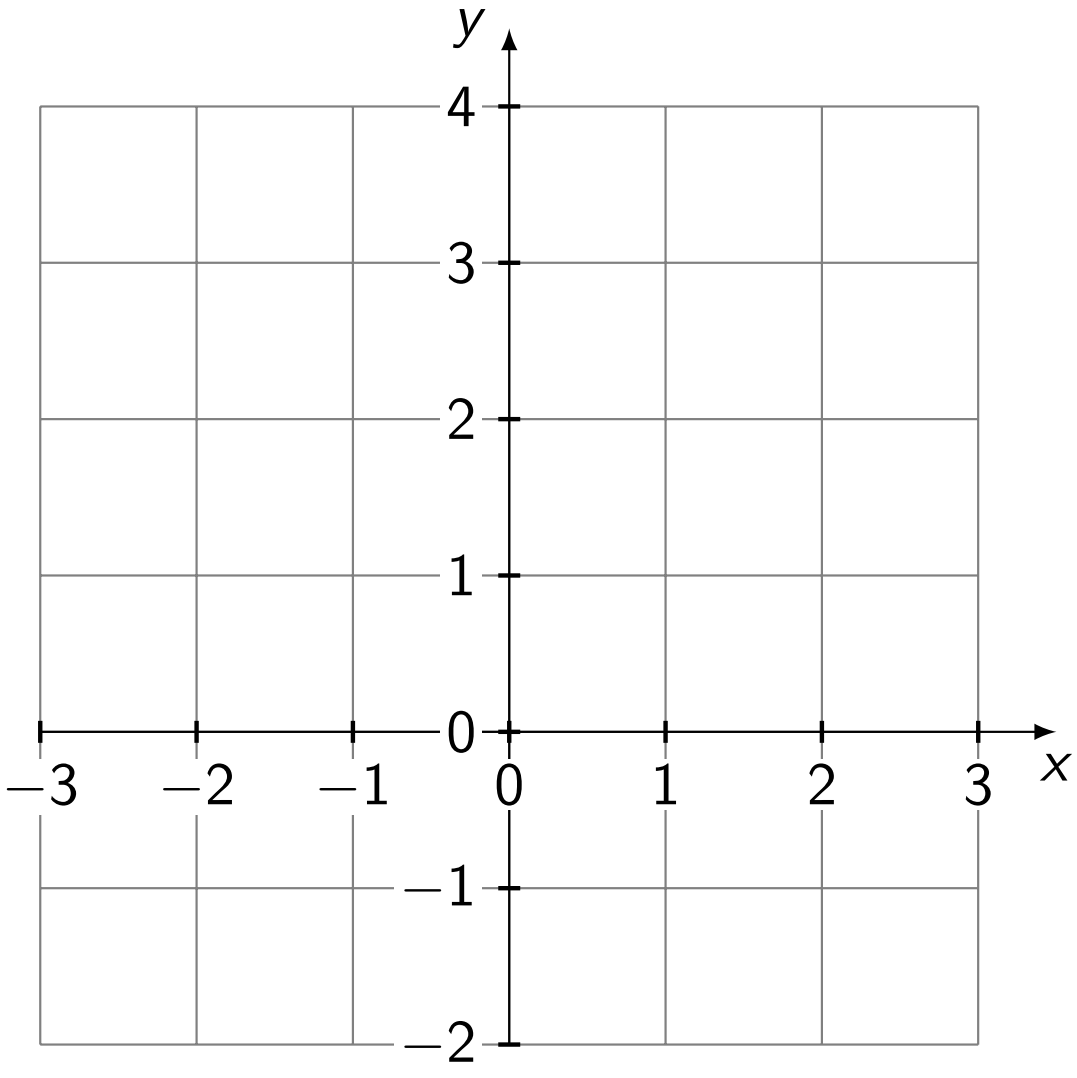
Task: Graph features of polynomials, problem set

Assessment: Graphing problem #3

Homework: Handout

Graphing polynomials

Graph the function $f(x) = x^4 - 4x^2 + 3$



Polynomials

Each polynomial function can be shown in two forms: standard and factored.

11.2

Standard form: From largest exponent to smallest

Order or degree: value of the largest exponent

Constant term: the ones value (8, in the example below)

Factored form: Product of binomials

Factor: each monomial (e.g. "$(x+1)$)

1. Evaluate $f(0)$ and $f(2)$ for each function below.
2. $f(x) = x^3 - 5x^2 + 2x + 8$

   $f(x) = (x+1)(x-2)(x-4)$

Vocabulary for polynomial functions

Standard form, factored form, order, degree

substitution, long division, remainder

x-intercepts, zeros, roots, solutions

y-intercept

end behavior, increasing/decreasing, turning points

symmetry, odd/even

Interpreting a displacement vs time graph

CCSS: F.IF.B.6 Calculate & interpret the rate of change of a function

Consider the function $f(x) = -x^2 + 2x + 3$

1. Factor f and state its zeros.
2. Restate f in vertex form. Write down the vertex as an ordered pair.
3. Over what intervals is the function increasing, decreasing, and neither?
4. If $f(x)$ represents the height of a diver over the domain $0 \leq x \leq 3$, interpret $f(0)$, the vertex, and $f(3)$
5. What does the "slope" of the curve represent?