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Week 4 > ABC Conjecture and Beyond > Problem (6-8)

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Problem 6
(1/1 point)

It is well-known that sometimes number theoretic problems have polynomial analogues. What is the polynomial analogue of prime numbers?

- ○ Primitive polynomials

- ○ Constant polynomials

- ○ Quadratic polynomials

- ◉ Irreducible polynomials   ✔

- ○ Irrelevant polynomials

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Problem 7
(1/1 point)

What is the polynomial analogue of the absolute value of an integer?

- ◉ The degree of a polynomial   ✔

- ○ The number of multiple roots of a polynomial

- ○ The number of complex roots of a polynomial

- ○ The irreducible factor of largest degree

- ○ The division algorithm of polynomials

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Problem 8

(2/2 points)

Consider the following polynomials with complex coefficients

$$f(x) = 2x^4 + x^3 + 1, \ g(x) = x^2 + 1.$$

Divide f(x) by g(x). What are the quotient and the remainder?

$$f(x) = (Ax^2 + Bx - 2) \ g(x) + (-x+C)$$

Fill an integer in each of the blanks.

A   **B**   **C**

| 2 | 1 | 3 |

✔ Answer: 2   ✔ Answer: 1   ✔ Answer: 3

| 2 | 1 | 3 |

You have used 1 of 2 submissions

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