

Hybleland L9-Lesson 22 Polynomial II-Assignment

Practice 1.

What is the sum of the squares of the solutions of $x^3 - 2x^2 - 3x - 1 = 0$?

- (A) 14 (B) 12 (C) -2 (D) 5 (E) 10

Practice 2.

If r, s, t are roots of the solutions of $x^3 - 2x^2 - 3x - 1 = 0$, determine the value of $\frac{1}{r^2} + \frac{1}{s^2} + \frac{1}{t^2}$.

- (A) 14 (B) 8 (C) 3 (D) 5 (E) 7

Practice 3.

AMC10A 2010 / Problem 21

The polynomial $x^3 - ax^2 + bx - 2010$ has three positive integer zeros. What is the smallest possible value of a ?

- A. 78 B. 88 C. 98 D. 108 E. 118

Practice 4.

What is the sum of the reciprocals of the solutions of $x^3 - 3x^2 - 13x + 15 = 0$?

- (A) $-13/15$ (B) $13/16$ (C) $13/17$ (D) $13/18$ (E) $13/15$

Practice 5.

(MAӨ 1990) Find the largest solution of $x^3 - 27x^2 + 242x - 720 = 0$ given that one root equals the average of the other two roots.

Practice 6.

(MAӨ 1992) If three roots of $x^4 + Ax^2 + Bx + C = 0$ are -1, 2, and 3, then what is the value of $2C - AB$?

Practice 7.

The fourth degree polynomial equation $x^4 - 7x^3 + 4x^2 + 7x - 4 = 0$ has four real roots, a, b, c and d.

What is the value of the sum $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} + \frac{1}{d}$? Express your answer as a common fraction.

- (A) $-\frac{7}{4}$ (B) $\frac{7}{4}$ (C) -7 (D) 7 (E) 1

Practice 8.

How many distinct ordered triples (x, y, z) satisfy the equations ?

$$\begin{cases} x + y + z = 6 \\ xy + yz + zx = 11 \\ xyz = 6 \end{cases}$$

- (A) none (B) 1 (C) 2 (D) 4 (E) 6

Practice 9.

How many distinct ordered triples (x, y, z) satisfy the following equations ?

$$\begin{cases} x + y + z = 9 \\ x^3 + y^3 + z^3 = 99 \\ xyz = 24 \end{cases}$$

- (A) none (B) 1 (C) 2 (D) 4 (E) 6

Practice 10.

How many distinct ordered triples (x, y, z) satisfy the following system of equations ?

$$\begin{cases} x + y + z = 1 \\ x^2 + y^2 + z^2 = 21 \\ x^3 + y^3 + z^3 = 55 \end{cases}$$

- (A) none (B) 1 (C) 2 (D) 4 (E) 6