Test 1

Wednesday 9.10.2024

Maths IB_1 HL Subjects : *quadratic eq, logarithms, polyg expansion ...*

Total : / 20

Name: Anna

Problem 1 [/4 marks]

Let us consider the equation $\frac{1}{2}x^2 + px + (5p - 12) = 0$

1) Find the possible values for p such that the equation has *only one* root.

2) Considering the case when p = 7, give the sum of the two roots.

Problem 2 [/4 marks]

Find A and B such that $\frac{30}{6x^2 - 13x + 6} = \frac{A}{2x - 3} - \frac{B}{3x - 2}$

Problem 3 [/4 marks]

Find y such that : $\log_7(3e^{3y-11}) = \frac{10 + \ln(3)}{\ln(7)}$

Problem 4 [/4 marks]

Find the coefficient of the term in x^4 in the expansion of $\left(2\sqrt{x} - \frac{1}{2}\right)^{10}$

Problem 5 [/4 marks]

Prove by induction $\sum_{j=0}^{n} 2^j = 2^n - 1$