Hon Pre-Calc Quiz - Solve Polynomial



Show all work!!! Circle ALL final answers!!!

Short Answer

1. Given: $f(x) = 2x^7 - 13x^6 + 50x^5 - 118x^4 + 126x^3 - 35x^2 - 22x + 10$, and f(1+3i) = 0

a) Determine the number(s) of positive, negative, and imaginary zeros

Positive	Negative	Imaginary
6	2	0
4	1	2
2	1	4
0	1	6

b) List all possible rational zeros

Possible Rational
$$\pm \left\{ 1, 2, 5, 10, \frac{1}{2}, \frac{5}{2} \right\}$$

c) Solve completely

$$= (x - (1+3i)) (x - (1-3i))$$

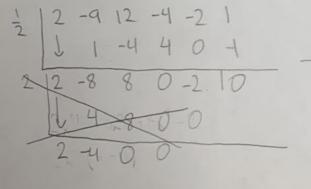
$$= (x-1)^2 - 9i^2$$

$$= (x-1)^2 - 9i^2$$

$$= x^2 - 2x + 1 + 9$$

$$= x^2 - 2x + 10$$

(x=2x+10) (2x5-9x4+12x3-4x2-2x+1)



= (x - (1+3i)) (x - (1-3i)) = (x - (1+3i)) (x - (1-3i)) = (x - (1+3i)) (x - (1+3i)) = (x - (1+3i)) (x - (1+3i))

Zeros:

-8 8 0 -2 1 2 -6 2 2 12 -6 2 2 10 1 2 -4 -2 2x2-4x-2 2 (x2-2x-1) X= 2= \(\frac{2}{(-2)^2-4(1)(-1)}\)
X= \(\frac{2}{2}\)
\(\frac{7}{2}\) X= 21 252 X=1+ \square

Zeros: 1+Jz, 1+3; 1 | mult 2

4 positive 1 Negative 2 Imaginary

1-52 1+3:
1-3i