Hon Alg 2: Section 6.6 Overview [illegible] Complete Calculations: KEY

Write the simplest polynomial function with the given roots.

1. [illegible]

f(x) = [illegible]

= [illegible]

f(x) = [illegible]

2. [illegible]

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= (x − 7)(x² + 16)

f(x) = x³ − 7x² + 16x − 112

3. [illegible]

f(x) = (x + 2)(x − 3 + i)(x − 3 − i)

= (x + 2)(x² − 6x + 10)

f(x) = x³ − 4x² − 2x + 20

Solve by finding all the roots.

4. x⁴ − 5x³ + 7x² − 5x + 6 = 0

① p/q = [illegible]

② Graph: x = 2 or x = 3

③ 2 | 1 −5 7 −5 6

2 −6 2 −6

1 −3 1 −3 0

x = 2

④ x³ − 3x² + x − 3 = 0

x²(x − 3) + 1(x − 3) = 0

(x² + 1)(x − 3) = 0

x = 3 x² + 1 = 0

x² = −1

x = ±i

x = 3

5. [illegible]

① p/q = [illegible]

② Graph: [illegible]

③ [illegible]

④ [illegible]

x = [illegible] x = [illegible]

6. A polynomial equation with rational coefficients has the roots [illegible], find the sum of the other two roots. others: [illegible]

sum: [illegible]

7. What is the degree of the simplest polynomial with integer coefficients that has [illegible] as roots? Explain your reasoning.

All roots: 3, √2, −√2, 5 + √5, 5 − √5, 5 + 5i, 5 − 5i

Degree of 7 because you need to add in 3 additional roots that come in conjugate pairs.