1.5A Polynomial Functions and Complex Zeros

AP Precalculus Name: _____ **CA #2**

For each polynomial function, find the intervals for each condition.

1. $a(x) = -x^2 - x + 2$. When is $h(x) \geq 0$?

2. $f(x) = x^3 - 2x^2 - 35x$. When is $h(x) \leq 0$?

3. $w(x) = (x-3)(x-5)^3(x+7)^2$. When is $w(x) \leq 0$?

4. $p(x) = -x(x-9)^4(x-1)^2(x+4)^4$. When is $p(x) \geq 0$?

For each polynomial, the degree is listed along with all of its real zeros. Find the number of NON-REAL zeros the polynomial has.

5. The degree is 3 with real zeros at $x = -3$ and $x = 1$. $x = 1$ has a multiplicity of 2.

6. The degree is 9 with real zeros at $x = 2, x = 5$, and $x = 7$. $x = 7$ has a multiplicity of 3.

7. The degree is 22 with real zeros at $x = -6$ and $x = 8$. $x = -6$ has a multiplicity of 11

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Given one non-real zero of a polynomial, find another zero.

8. $4 - i$

9. $-3 + 6i$

Find the degree of the polynomial from the given input and output values.

10.

Input	0	1	2	3	4	5	6	7
Output	6	6	-12	-54	-102	-114	-24	258

11.

Input	0	1	2	3	4	5	6	7
Output	11	13	13	11	7	1	-7	-17

Answers to 1.5A CA #2

1. $[-2, 1]$	2. $(-\infty, -5] \cup [0,7]$	3. $[3, 5]$ and $x = -7$	4. $(-\infty, 0]$, $x = 1$ and $x = 9$			
5. 0	6. 4	7. 10	8. $4 + i$	9. $-3 - 6i$	10. 4	11. 2

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