1.5A Polynomial Functions and Complex Zeros

AP Precalculus Name: _____ **CA #1**

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

1. $h(x) = -x^2 + 8x - 7$. When is $h(x) \leq 0$?

2. $p(x) = x(x-2)^4(x-4)^3(x+8)$. When is $p(x) \leq 0$?

3. $f(x) = x^2(x+6)(x-1)^6(x+3)^3$. When is $f(x) \geq 0$?

4. $g(x) = x^3 - x^2 - 12x$. When is $g(x) \geq 0$?

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 4 with real zeros at $x = -4$ and $x = 4$.

6. The degree is 13 with real zeros at $x = -9, x = 0$, and $x = 13$. $x = 0$ has a multiplicity of 5.

7. The degree is 5 with real zeros at $x = 3$ and $x = 8$. $x = 3$ has a multiplicity of 4.

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

8. $-9+2i$

9. $3-7i$

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

10.

Input	0	1	2	3	4	5	6	7
Output	7	3	5	31	99	227	433	735

11.

Input	0	1	2	3	4	5	6	7
Output	8	17	58	113	116	-47	-538	-1567

Answers to 1.5A CA #1

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

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