1.4 Polynomial Functions and Rates of Change

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

Find the leading coefficient and the degree of each polynomial.

1. $f(x) = -8x^2 - 6x - 5$

   L.C. _____ Degree: _____

2. $f(x) = 10x^3 + 7$

   L.C. _____ Degree: _____

3. $f(x) = 8x^4 + 3x^5 - 2x$

   L.C. _____ Degree: _____

4. $f(x) = 2x + 8x^4$

   L.C. _____ Degree: _____

Let $f(x)$ be a polynomial function with the given values. Are there any guaranteed extrema? If so, state where they occur.

5. $f(0) = -2, f(1) = 0$, and $f(11) = 0$.

6. $f(-8) = 0, f(0) = 1$, and $f(5) = 3$.

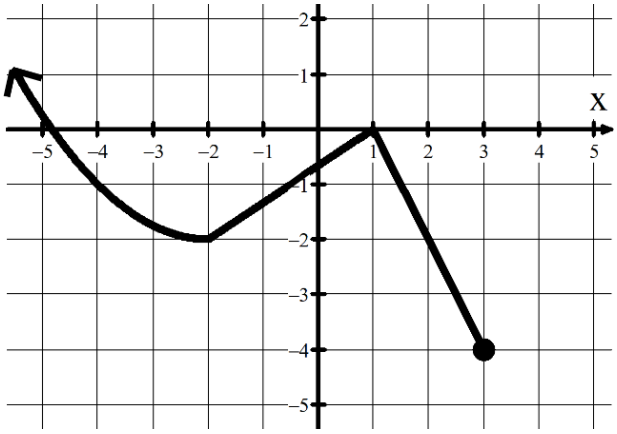
Is there a global maximum or minimum for each function?

7. $f(x) = 2x^5 - 4x^2 + x$

8. $f(x) = 3x^6 - 2$

9. $f(x) = -7x^8 + 2x^3 + 1$

Find the following extrema. If there are none, cross it off and write NONE.

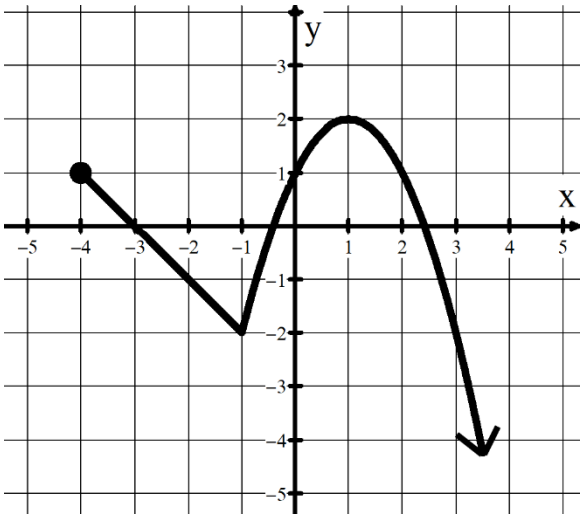


10. Absolute **min** of _____ when $x =$

11. Absolute **max** of _____ when $x =$

12. Relative **min**(s) at $x =$

13. Relative **max**(es) at $x =$



14. Absolute **min** of _____ when $x =$

15. Absolute **max** of _____ when $x =$

16. Relative **min**(s) at $x =$

17. Relative **max**(es) at $x =$

Answers to 1.4 CA #1

1a. -8 1b. 2	2a. 10 2b. 3	3a. 3 3b. 5	4a. 8 4b. 4	5. Yes, on $1 < x < 11$.
6. No guarantee.	7. none	8. min	9. max	10. min of -4 when $x = 3$
11. none	12. -2 and 3	13. 1	14. none	15. max of 2 when $x = 1$
16. -1			17. -4 and 1	