Properties of graphs

1. What does it mean for a function $f(x)$ to be continuous at $x = a$? Explain how to test if a function is continuous at $x = a$.

2. What does it mean for a function $f(x)$ to be differentiable at $x = a$? Explain how to test if a function is differentiable at $x = a$.

3. What does $\frac{df}{dx}\Big|_{x=a}$ indicate you about the graph of $y = f(x)$? Explain why this is true.

4. What does it mean for a function to be increasing? Explain how to use calculus to tell if a function is increasing. Explain why this works.

5. What does it mean for a function to be concave up? Explain how to use calculus to tell if a function is concave up. Explain why this works.

6. What is a critical point? Explain how to find critical points of a function $f(x)$?

7. What is a point of inflection? Explain how to find points of inflection of a function $f(x)$?

8. What is an asymptote of a function $f(x)$? Explain how to justify that a given line is an asymptote of $f(x)$?