8. [8 points] On the axes provided below, sketch the graph of a single function \( y = g(x) \) satisfying all of the following:

- \( g(x) \) is defined for all \( x \) in the interval \(-5 < x < 5\).
- \( g'(x) > 0 \) for all \( x < 0 \).
- \( g(x) \) has a point of discontinuity at \( x = 1 \).
- The average rate of change of \( g(x) \) between \( x = -2 \) and \( x = 2 \) is 0.
- \( g(x) > 0 \) for all \( x > 3 \).
- \( g'(x) < 0 \) for all \( x > 4 \).

Make sure that your sketch is large and unambiguous.

9. [3 points] Find all vertical and horizontal asymptotes of the graph of

\[
g(x) = \frac{k(x - a)(x - b)}{(x - a)(x - c)^2}
\]

where \( a, b, c, \) and \( k \) are constants with \( a < b < c < k \). If there are none, write NONE.

**Horizontal asymptote(s):**

**Vertical asymptote(s):**