3. (3 pts each–no partial credit) The following problems are to be considered independent of each other. For each problem, circle all the statements that are correct.

(a) Let \( C(r) \) represent the total cost of paying off a car loan borrowed at an interest rate of \( r\% \) per year. Then:

- The units of \( C'(r) \) are \$/year.
- The expression \( C'(5) = A \) (with units) represents the rate of change of the total cost of the car loan.
- The expression \( C'(5) = A \) (with units) indicates that if the interest rate increases from 5\% to 6\%, the total cost of the loan would be approximately \( C(5) + A \).
- The expression \( C'(5) \) (with units) indicates that if the interest rate increases by 5\%, then the total cost of the loan increases by about \( C'(5) \).
- The expression \( C'(5) \) (with units) indicates that if the interest rate increases from 5\% to 6\%, the total cost of the loan increases by about \( C'(5) \).
- The sign of \( C'(5) \) cannot be determined from the context of the information given.

(b) If the figure below shows position as a function of time for two sprinters running in parallel lanes, then:

- At time \( A \), both sprinters have the same velocity.
- Both sprinters continually increase their velocity.
- Both sprinters run at the same velocity at some time before \( A \).
- At some time before \( A \), both sprinters have the same acceleration.

(c) Let \( f \) and \( g \) be differentiable functions. Assume \( f \) is an even function and \( g \) is an odd function. Then:

- \( g' \) is an even function
- the composition, \( f(g(x)) \), is an odd function.
- \( h(x) = f(x)g(x) \) is an odd function.

(d) Suppose that \( f''(x) > 0 \) everywhere. Then:

- \( f'(x) \) is increasing.
- \( f(b) > f(a) \) whenever \( a < b \).
- \( f'(x) < 0 \).