

8. [6 points] Each part below describes a twice differentiable function and one or more approximations of its integral. For each of the following statements, determine if the statement is **ALWAYS** true, **SOMETIMES** true, or **NEVER** true, and circle the appropriate answer.

No justification is required.

a. [1 point] If $A'(x) > 0$ for all x , then $\text{LEFT}(4) \leq \int_{-1}^1 A(x) dx$.

Circle one: **ALWAYS** **SOMETIMES** **NEVER**

b. [1 point] If $B'(x) > 0$ for all x , then $\text{TRAP}(4) \leq \int_{-1}^1 B(x) dx$.

Circle one: **ALWAYS** **SOMETIMES** **NEVER**

c. [1 point] If $C''(x) > 0$ for all x , then $\text{TRAP}(4) \leq \int_{-1}^1 C(x) dx$.

Circle one: **ALWAYS** **SOMETIMES** **NEVER**

d. [1 point] If $D(x)$ is odd and $\text{MID}(4)$ approximates $\int_{-1}^1 D(x) dx$, then $\text{MID}(4) = 0$.

Circle one: **ALWAYS** **SOMETIMES** **NEVER**

e. [1 point] If $E'(x) > 0$ and $E''(x) < 0$ for all x , then $\int_{-1}^1 E(x) dx \leq \text{MID}(2) \leq \text{RIGHT}(2)$.

Circle one: **ALWAYS** **SOMETIMES** **NEVER**

f. [1 point] If $F(x)$ is not constant, then $\text{RIGHT}(3)$ approximates the integral $\int_{-1}^1 F(x) dx$ more accurately than $\text{RIGHT}(2)$.

Circle one: **ALWAYS** **SOMETIMES** **NEVER**