

Show your work in all problems.

1. A company's revenue from plasma TV sales, C (in hundreds of dollars), is a function of advertising expenditure, A , in hundreds of dollars, so $C = f(A)$.

(a) What does the company hope about the sign of f' ?

They hope it is positive

(b) What does the statement $f'(250) = 3$ mean in practical terms?

Near \$25000, each extra \$100 spent on advertising increases the revenue by about \$300.

(c) If $f'(250) = 0.5$, should the company spend more or less than \$25000 on advertising? Explain why.

Less. For each extra \$100 spent on advertising, the revenue increases by only \$50, so more money is spent compared to gained.

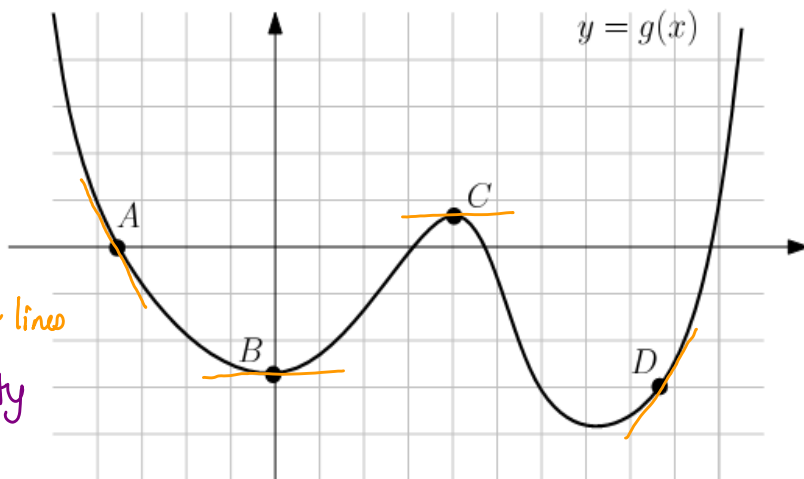
2. Fill in the table of signs for g, g', g''

	A	B	C	D
g	○	—	+	—
g'	—	○	○	+
g''	+	+	—	+

function values

slope of tangent line

concavity



3. A company producing lawn chairs has total cost given by $C(q)$ and revenue given by $R(q)$ measured in dollars where q is the quantity of lawn chairs.

(a) If $C'(52) = 12$ and $R'(52) = 25$, approximately how much profit is earned by the 53rd item?

additional cost

additional revenue

$$\text{Additional profit} = 25 - 12 = \$13$$

(b) If $C'(52) = 12$ and $C(52) = 25024$, estimate $C(55)$

$$C(55) \approx C(52) + 3 \cdot 12 = 25060$$

of additional items