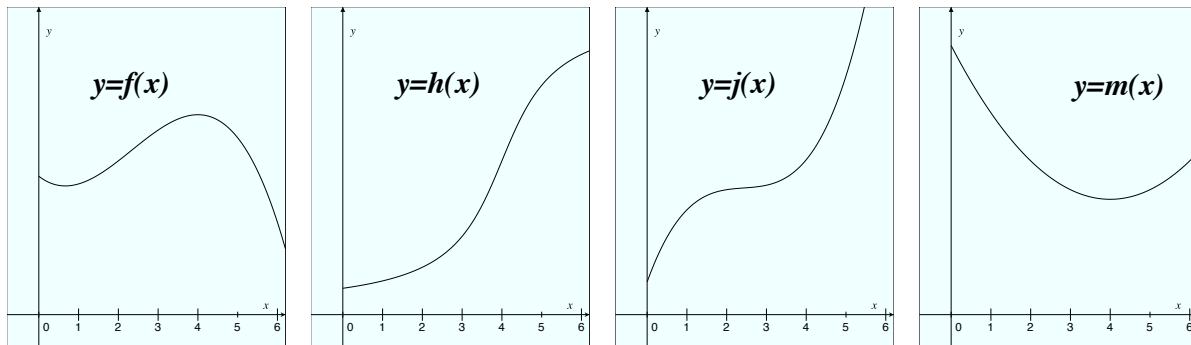


5. [12 points] The questions (a)–(d) refer to the functions whose graphs are depicted below.



For each question, circle the **one** best answer.

Note that these questions are independent of each other; information provided in one should NOT be used in the others. *No explanations are necessary.*

a. [3 points] Suppose $f(x) = g'(x)$ for some differentiable function g . Then

- i. g has a local minimum at $x = 4$.
- ii. g has a local maximum at $x = 4$.
- iii. g has an inflection point at $x = 4$.
- iv. None of the above

b. [3 points] If a function k has a local maximum at $x = 2$, which of the functions above could be the second derivative of k ?

- i. f
- ii. h
- iii. j
- iv. m
- v. None of these

c. [3 points] Suppose the average cost (in dollars per shirt) of printing a new style of maize U of M Math Department t-shirts is smallest when 400 t-shirts are printed. One of the functions graphed above gives the total cost of printing x hundred maize U of M t-shirts. Which of the graphs represents this function?

- i. f
- ii. h
- iii. j
- iv. m

d. [3 points] Suppose each of the graphs represents the derivative of a function. Which is (are) the derivative(s) of a function whose global minimum for $0 \leq x \leq 5$ occurs at $x = 0$?

- i. h and j
- ii. m
- iii. None of the graphs
- iv. All of the graphs