

The graph of  $f$ 

6. Let  $f$  be a function defined on the closed interval  $[-3, 9]$ . The graph of  $f$ , consisting of three line segments is shown above. Let  $g(x) = \int_0^x f(t) dt$ .
- (a) Find  $g(4.5)$ ,  $g'(4.5)$ , and  $g''(4.5)$ .
  - (b) Find the average value of  $f$  on the closed interval  $[-3, 5]$ . Show the work that leads to your answer.
  - (c) Find the  $x$ -coordinate of any points of inflection of  $g$ . Justify your answer.
  - (d) Find the coordinates of all maximum points of  $g$ .

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