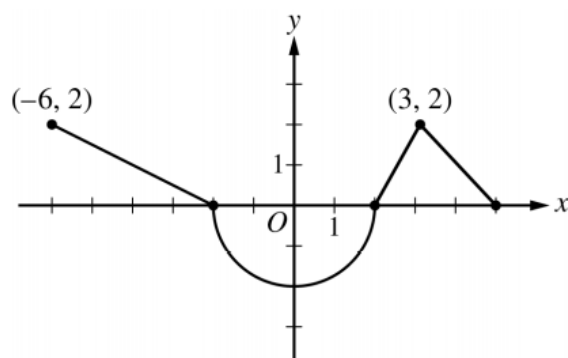


**2017 AP<sup>®</sup> CALCULUS AB FREE-RESPONSE QUESTIONS****NO CALCULATOR IS ALLOWED FOR THESE QUESTIONS.**Graph of  $f'$ 

3. The function  $f$  is differentiable on the closed interval  $[-6, 5]$  and satisfies  $f(-2) = 7$ . The graph of  $f'$ , the derivative of  $f$ , consists of a semicircle and three line segments, as shown in the figure above.
- (a) Find the values of  $f(-6)$  and  $f(5)$ .
- (b) On what intervals is  $f$  increasing? Justify your answer.
- (c) Find the absolute minimum value of  $f$  on the closed interval  $[-6, 5]$ . Justify your answer.
- (d) For each of  $f''(-5)$  and  $f''(3)$ , find the value or explain why it does not exist.