Essentials of Calculus
Homework 2.2 The derivative function

1. Let $f(x) = 2x^2$. Approximate the following values.

   a) $f'(-1)$.

   b) $f'(0)$.

   c) $f'(1)$.

   d) $f'(2)$.

2. Let $f(x)$ be the function with the following graph.

   a) Draw the tangent lines to the graph at $x = 1, 2, 3$.

   b) Approximate $f'(1), f'(2), f'(3)$.

   c) Sketch the graph of f'.

3. For the functions given by the following graphs, sketch the graph of the derivative.

   a)

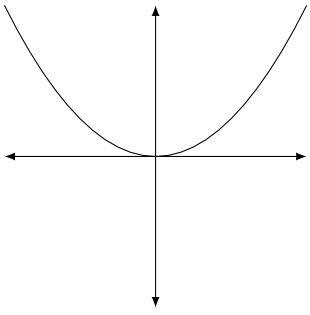
   b)

   c)

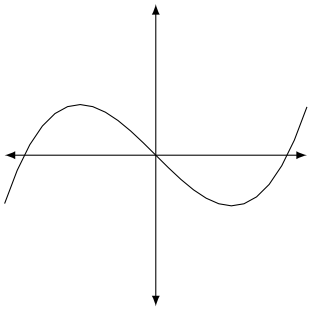
   d)

4. Match the graphs of the functions ((a)-(d)) with the graphs of their derivatives (I-IV).

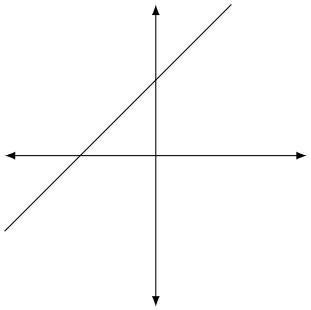
   (a)



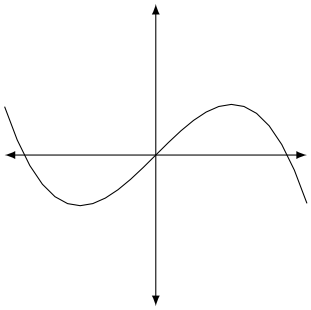
(b)



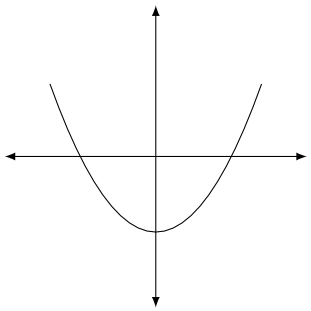
(c)



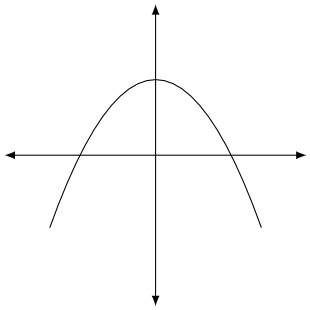
(d)



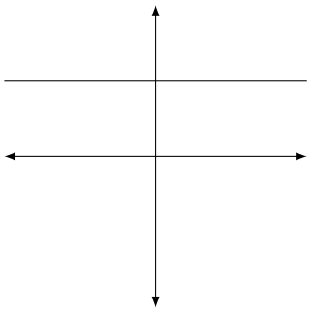
(I)



(II)



(III)



(IV)