

Math 1a. §2.8 Worksheet

The Derivative as a Function

Fall 2005

1. Using the graph below, estimate each of the following.

(a) $f(-2)$

(d) $f'(1)$

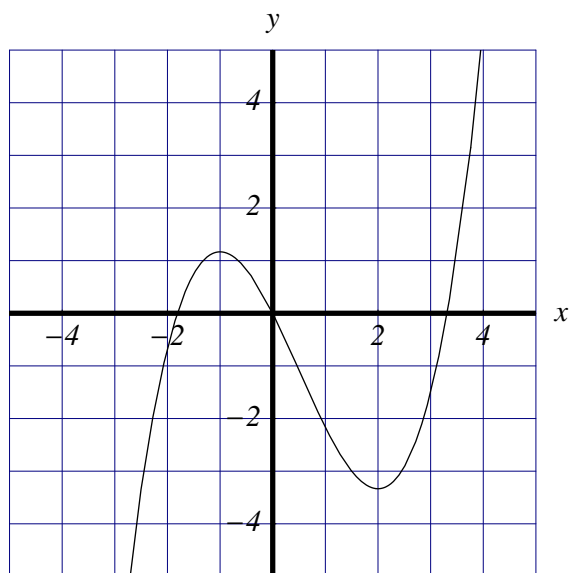
(b) $f'(-1)$

(e) $f'(2)$

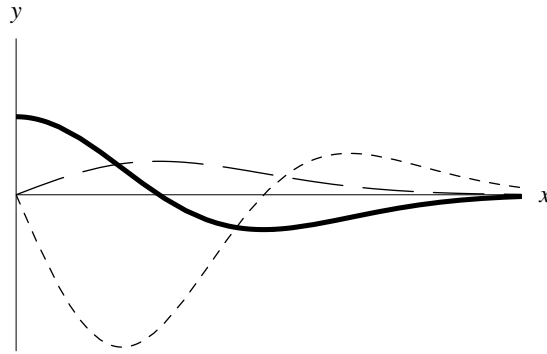
(c) $f'(0)$

(f) $f'(3)$

Sketch the graph of the derivative function.



2. Graphs of f , f' , and f'' are shown below. Which is which? How can you tell?



3. Find the derivative of

$$f(x) = \frac{3+x}{1-3x}.$$

4. The unemployment rate $U(t)$ varies with time. The table below gives the percentage of unemployment in the U.S. labor force from 1993 to 2002.¹

t	$U(t)$	t	$U(t)$
1993	6.9	1998	4.5
1994	6.1	1999	4.2
1995	5.6	2000	4.0
1996	5.4	2001	4.7
1997	4.9	2002	5.8

- (a) What is the meaning of $U'(t)$? What are its units?
 (b) Construct a table of values for $U'(t)$.

¹Bureau of Labor Statistics.