MATH 1A WORKSHEET: THE DERIVATIVE AS A FUNCTION

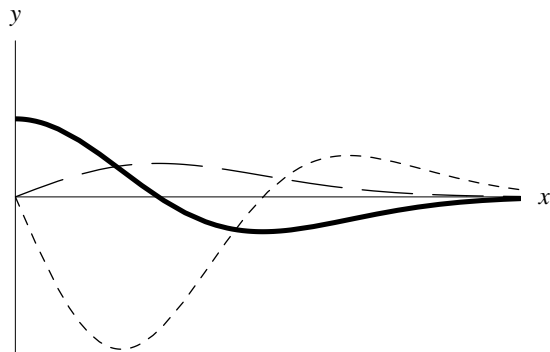(1) Using the graph below, estimate each of the following.

(a) $f(-2)$ (e) $f'(2)$

(b) $f'(-1)$ (f) $f'(3)$

(c) $f'(0)$

(d) $f'(1)$

Sketch the graph of the derivative function.
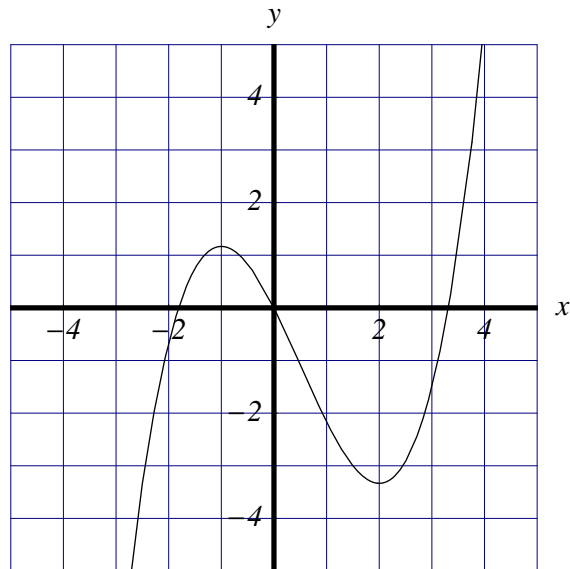
(2) Graphs of f, f', and f'' are shown below. Which is which? How can you tell?

(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 $U'(t)$.

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[1]Bureau of Labor Statistics.