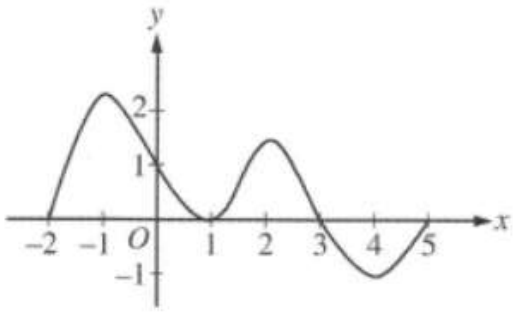
Relationship between *f*, f', and f''. (Calculator ACTIVE!!!)



Graph of f'

2008 #76

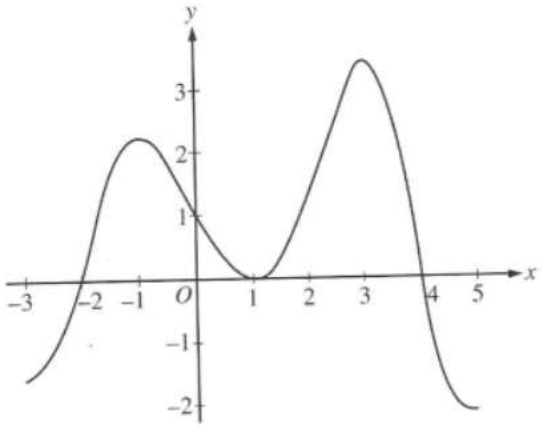
The graph of f', the derivative of f, is shown above for $-2 \le x \le 5$. On what intervals is f increasing?

(A) [-2, 1] only
(B) [-2, 3] only
(C) [3, 5] only
(D) [0, 1.5] and [3, 5]
(E) [-2, -1], [1, 2], and [4, 5]

2008 #78

The first derivative of the function f is defined by $f'(x) = \sin(x^3 - x)$ for $0 \le x \le 2$. On what intervals is f increasing?

(A) $1 \le x \le 1.445$ only
(B) $1 \le x \le 1.691$
(C) $1.445 \le x \le 1.875$
(D) $0.577 \le x \le 1.445$ and $1.875 \le x \le 2$
(E) $0 \le x \le 1$ and $1.691 \le x \le 2$



Graph of f'

2008 #84

The graph of the derivative of a function f is shown in the figure above. The graph has horizontal tangent lines at $x = -1$, $x = 1$, and $x = 3$. At which of the following values of x does f have a relative maximum?

(A) -2 only (B) 1 only (C) 4 only (D) -1 and 3 only (E) -2, 1, and 4