

3.6 Day 2

Friday, December 8, 2017 9:46 PM

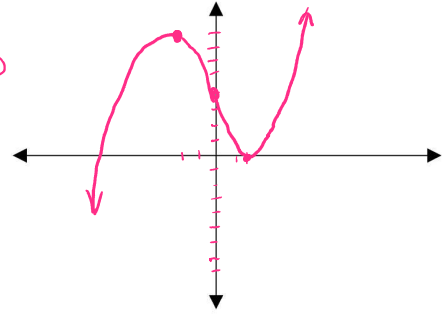
AP Calculus AB

Section 3.6: Curve Sketching using the Derivative Day 2

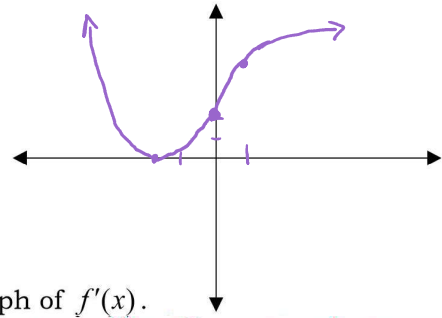
Do Now:

Sketch a continuous curve $f(x)$ with the following properties. Label the coordinates where possible.

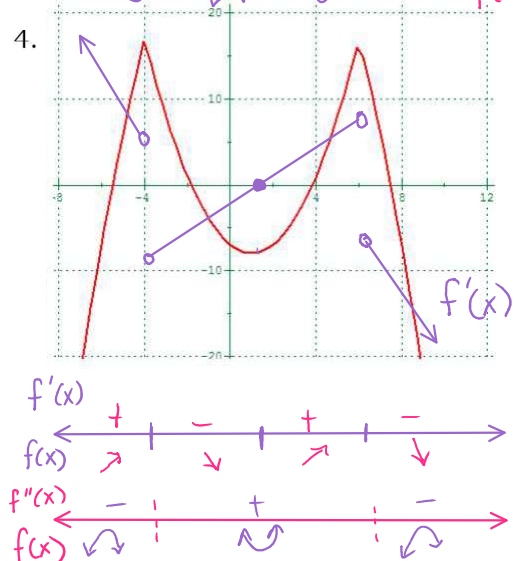
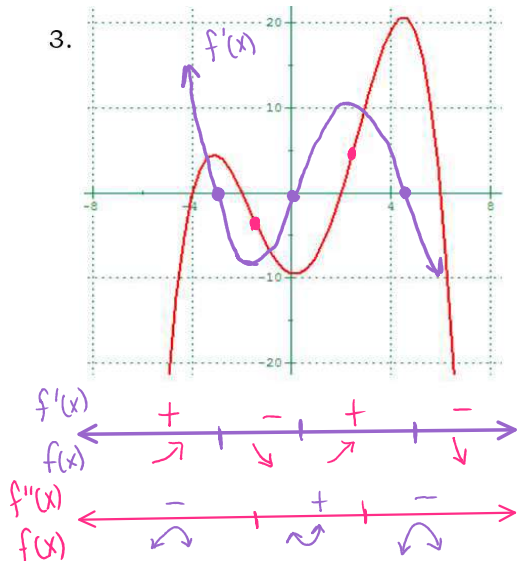
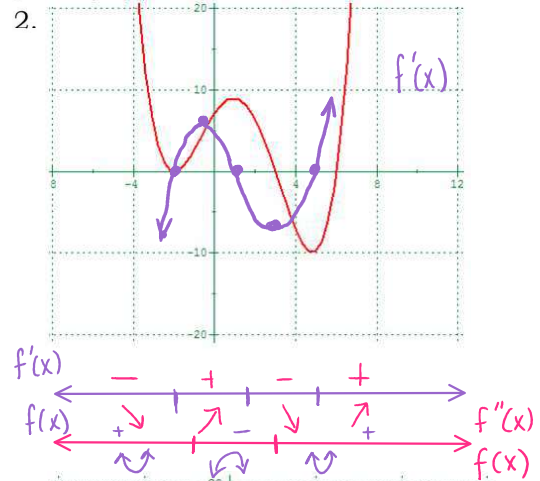
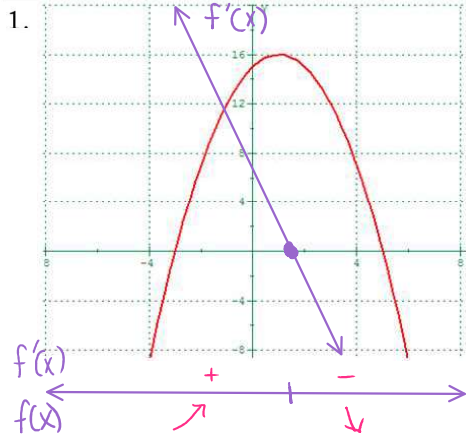
- a. $f(0) = 4$ (0,4) $f'(x) > 0$ for $|x| > 2$
 incr on $(-\infty, -2) \cup (2, \infty)$
 $f(-2) = 8$ (-2,8) $f'(x) < 0$ for $|x| < 2$
 decr on $(-2, 2)$
 $f(2) = 0$ (2,0) $f''(x) < 0$ for $x < 0$
 Concave down $(-\infty, 0)$
 $f'(-2) = f'(2) = 0$ $f''(x) > 0$ for $x > 0$
 Concave up $(0, \infty)$
 horizontal tan lines at $(-2, 8)$ & $(2, 0)$



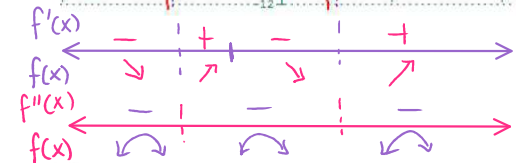
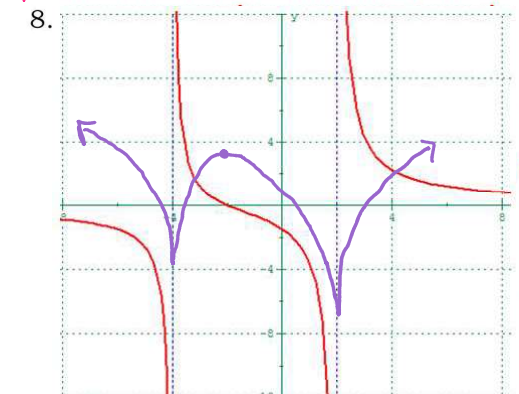
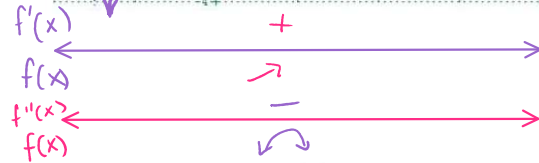
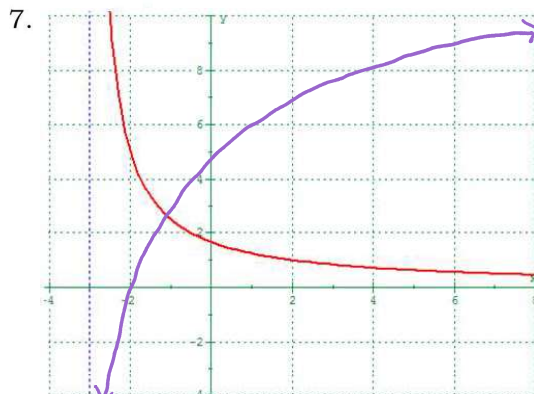
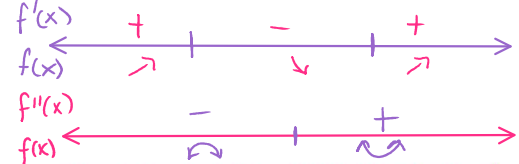
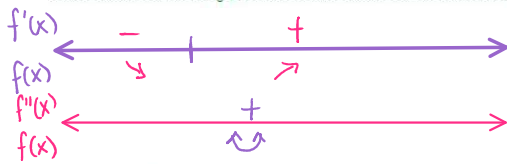
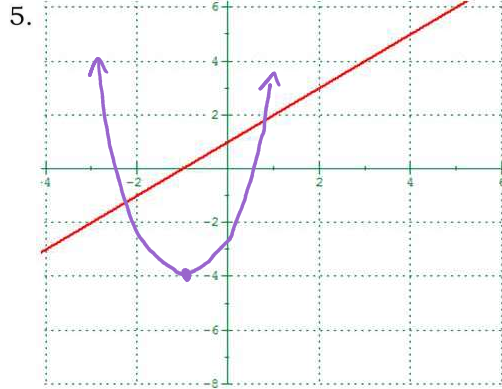
- b. $f(0) = 2$ (0,2) $f''(x) > 0$ for $x < 1$
 Concave up $(-\infty, 1)$
 $f'(-2) = 0$ $f''(x) < 0$ for $x > 1$
 Concave down $(1, \infty)$
 horiz. tanline at $x = -2$
 $\lim_{x \rightarrow \infty} f(x) = \infty$
 right end behavior



Class Work: Given the graph of $f(x)$, sketch the graph of $f'(x)$.



Given the graph of $f'(x)$, sketch the graph of the continuous function $f(x)$.



Given the graph of $f''(x)$, sketch the graph of $f(x)$ and $f'(x)$.

