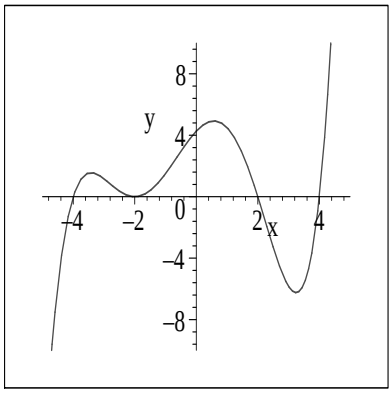
Solutions to Quiz 7

MATH 139-02
Thursday, February 26, 2004

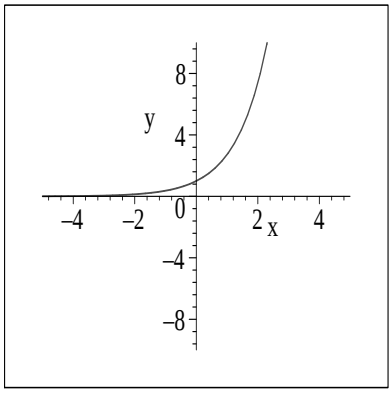
1. For the function f graphed below, determine where $f''(x)$ is positive and where it is negative. (Indicate your answers on the graph.)



Solution: $f''(x)$ is positive for x between -3 and -1 and for $x > 2$. $f''(x)$ is negative for $x < -3$ and for x between -1 and 2.

2. Sketch the graph of a function f with the properties that $f''(x) > 0$ and $f'(x) > 0$ for all x.

Solution:



I have graphed e^x.

3. Suppose that f is a function such that $f(4) = 2$ and $f'(4) = 0.25$. Estimate $f(4.1)$.

Solution: The slope of the tangent line is 0.25, so for a run of 0.1, the rise (along the tangent line) will be 0.025. Since the rise begins at 2, the ending y-value is 2.025, and that is an estimate for $f(4.1)$.