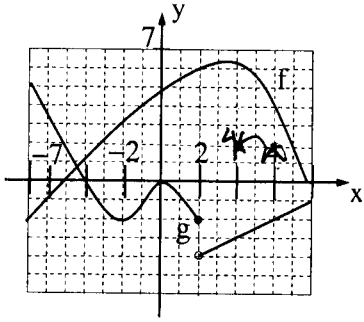


(10 pts) The graphs of two functions, f and g are given in the figure below. Use the graphs to estimate each of the following:



Each box is 1 unit

(a) $f(g(-2)) = f(-2) = 3$

(b) $\lim_{x \rightarrow 4^+} (f(x) + g(x)) \approx 6 + (-3) = 3$

(c) $f'(-7) \approx -1$

(d) The sign of $f''(3)$ is negative

(10 pts) Suppose $f(t) = 1.8e^{0.248t}$ is the population of Mexico in millions, where t is the number of years since 1980.

(a) What is the average rate of change of the population between 1992 and 1996?

$f(12) \approx 35.30$ million, $f(16) \approx 95.18$ million
 $\rightarrow \approx 35.30$ million, $f(16) \approx 95.18$ million
 avg. rate of change
 $= \frac{95.18 - 35.30}{4} \approx 14.97$ mil/yr.

(b) Explain the practical meaning of the statement $f(12) = 35.30$

the population is about 35.3 million in 1992

(c) Explain the practical meaning of the statement $f^{-1}(95.18) = 16$

the population is about 95.18 million in 1996

(d) What are the units for $f'(t)$?

millions of people/year

(e) Explain the practical meaning of the statement $f'(12) = 8.75$

the pop. is increasing at a rate of 8.75 million/yr. in 1992.