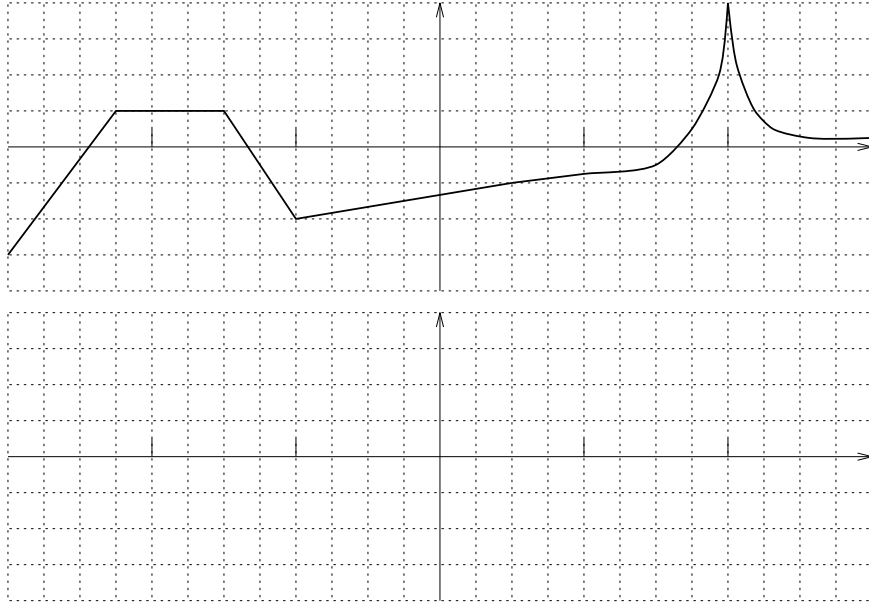
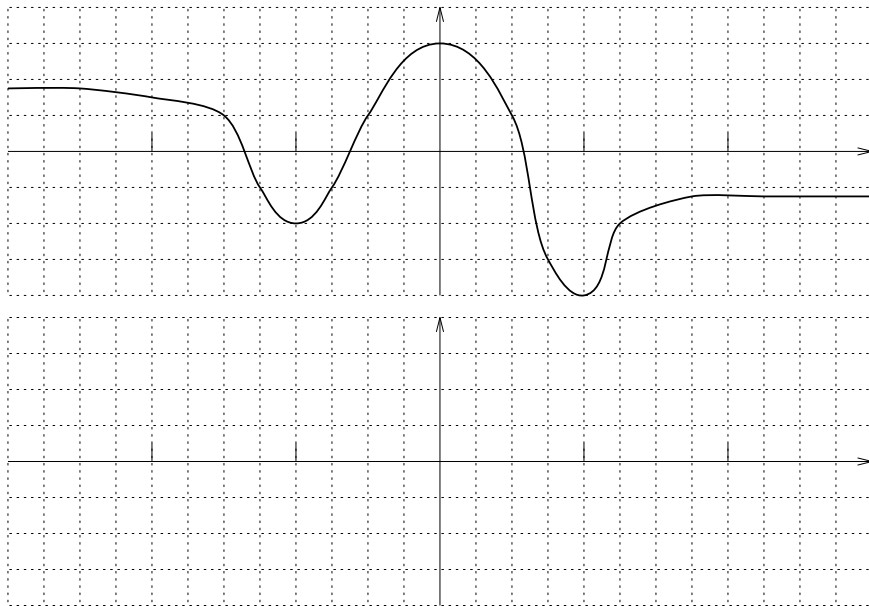


3. [10 points] Below there are two graphs of functions with an empty graph grid below each. Draw the graph of the derivative of each in the grid below its graph.

(a)



(b)



4. [10 points] Find the derivatives below.

a. $\left(\frac{1}{x} + x^3 \sin x\right)'$

b. $\left(x^3 \sqrt{x} + \frac{x}{\csc x}\right)'$

5. [5 points] Show that $(\tan x)' = \sec^2 x$.

6. [15 points] Find the limits below. Show each step you use.

a. $\lim_{x \rightarrow \infty} \frac{\sqrt{3x^2 + 2}}{4x}$

b. $\lim_{\theta \rightarrow 0} \frac{\tan 3\theta}{\theta}$

c. $\lim_{x \rightarrow \infty} \frac{x^2 + x + 3}{2x^2 + 5}$.