

NAME: _____

(1) Find $f'(x)$ for each of the following:

(a) $f(x) = 2\pi^x + x^\pi + (5.5)^x - 5.5e$

(b) $f(x) = \frac{-3 \sin x + 2^x - 1}{x^{-4/7} + 3}$

(c) $f(x) = 3 \cdot 5^x \left(\sqrt[5]{x} - \frac{4}{7} \right)$

(2) For which values of x is the graph of $y = e^x - x - 7$ both decreasing and concave up?
SHOW YOUR WORK! (You MUST use derivatives to explain your answer.)