Calculus I Quiz #4

Problem 1 $f(x) = 4x^2 - 5x + |x + 1|$, $I = [-3, 2]$

a) Give $f'(x)$ and $f''(x)$.

b) On what parts of the interval I is f continuous? Differentiable?

c) Give the critical points and inflection points of f in I.

d) Find the global (absolute) and local (relative) extrema of f on I. Use the First or Second Derivative tests as you see fit.

e) Describe the concavity of $f(x)$.

f) Sketch the curve of $f(x)$ using the information from a)-e).

Problem 2 $f(x) = \cos(3\pi x)$, $I = [-1, \frac{1}{2}]$

a) Give $f'(x)$ and $f''(x)$.

b) On what parts of the interval I is f continuous? Differentiable?

c) Give the critical points and inflection points of f in I.

d) Find the global (absolute) and local (relative) extrema of f on I. Use the First or Second Derivative tests as you see fit.

e) Describe the concavity of $f(x)$.

f) Sketch the curve of $f(x)$ using the information from a)-e).