> Complete the problems listed below **on this sheet**.
> To receive full credit, show all of your work.
> **No calculators allowed for this portion of the test.**

1. *5 points* For each of the functions below, compute the first derivative. It is not necessary to show which derivative rules you are using. It is not necessary to simplify your answers.

   - $(\sin(x))' = \cos(x)$
   - $(\cos(x))' = -\sin(x)$

   (a) $f(x) = \dfrac{\cos(x)}{(x+7)^{10}}$

   (b) $f(x) = xe^{-6x}$

   (c) $f(x) = e^{\sin(9x)}$

   (d) $f(x) = \ln(e^x)$

   (e) $f(x) = \ln((3x+1)^2(2x+1)^4(x+1)^6)$