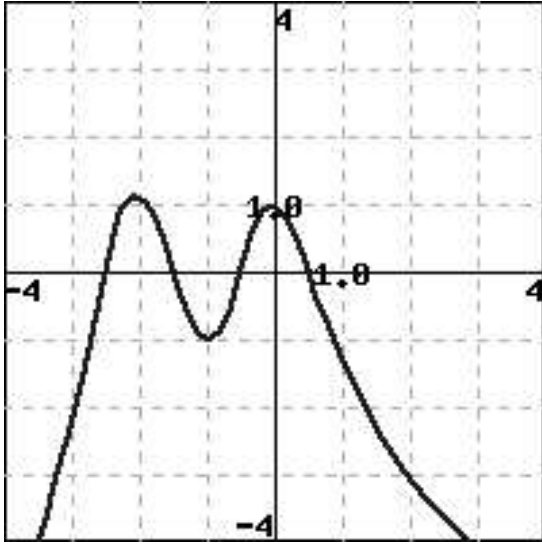


1.(1 pt) The graph of the function $f(x)$ is



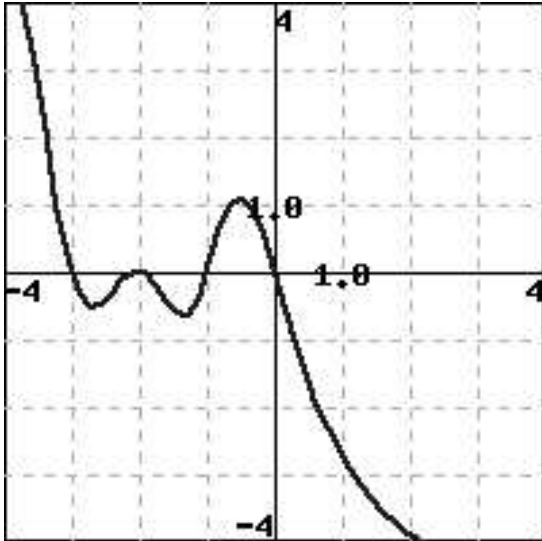
(the horizontal axis is x.)

Given the differential equation $x'(t) = f(x(t))$.

List the constant (or equilibrium) solutions to this differential equation in increasing order and indicate whether or not these equations are stable, semi-stable, or unstable.

_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>

2.(1 pt) The graph of the function $f(x)$ is



(the horizontal axis is x.)

Given the differential equation $x'(t) = f(x(t))$.

List the constant (or equilibrium) solutions to this differential equation in increasing order and indicate whether or not these equations are stable, semi-stable, or unstable.

_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>

3.(1 pt) Given the differential equation $x' = (x + 3) * (x + 1)^3(x - 1)^2(x - 2.5)$.

List the constant (or equilibrium) solutions to this differential equation in increasing order and indicate whether or not these equations are stable, semi-stable, or unstable. (It helps to **sketch the graph**. xFunctions will plot functions as well as phase planes.)

_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>

4.(1 pt) Given the differential equation $x'(t) = -x^4 + 2x^3 + 7x^2 - 8x - 12$.

List the constant (or equilibrium) solutions to this differential equation in increasing order and indicate whether or not these equations are stable, semi-stable, or unstable. (It helps to **sketch the graph**. xFunctions will plot functions as well as phase planes.)

_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>
_____	<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="?"/>