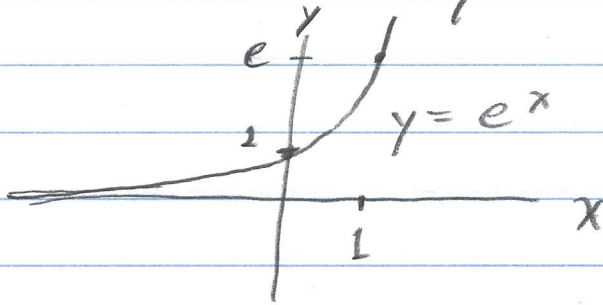


1.5 #9

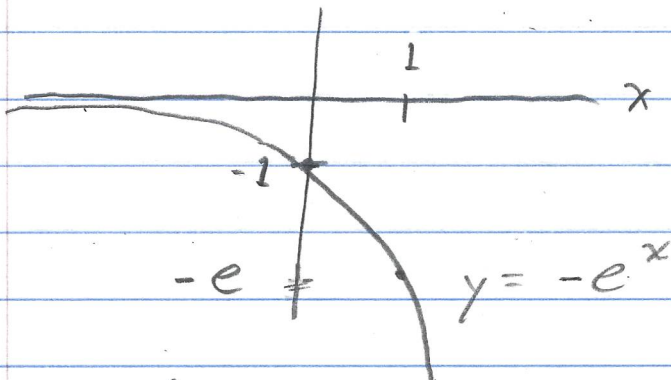
Sketch $y = 1 - e^x$ and $y = 1 - e^{-x}$.

Solution

Recall that $y = e^x$ has the graph

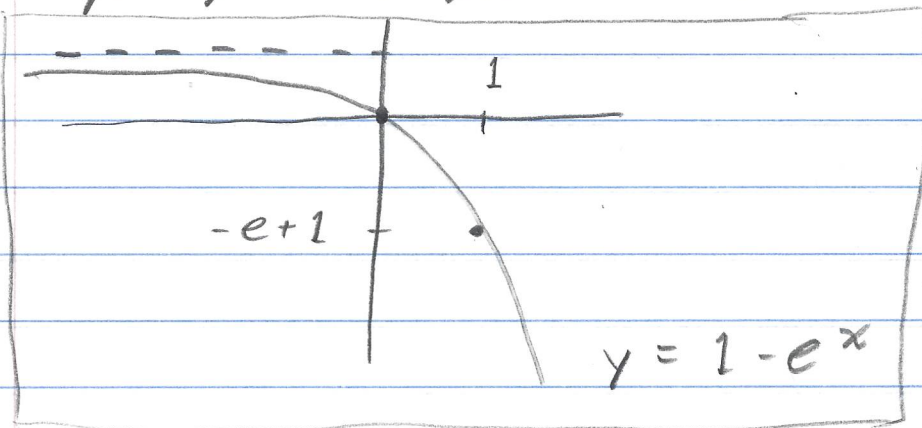


For $y = 1 - e^x$, first let's graph $y = -e^x$:

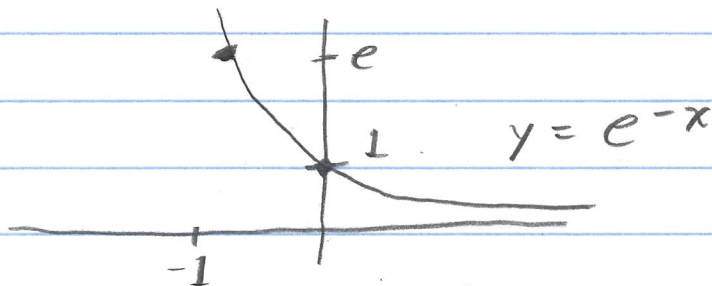


(This is a reflection of $y = e^x$ about the x-axis!)

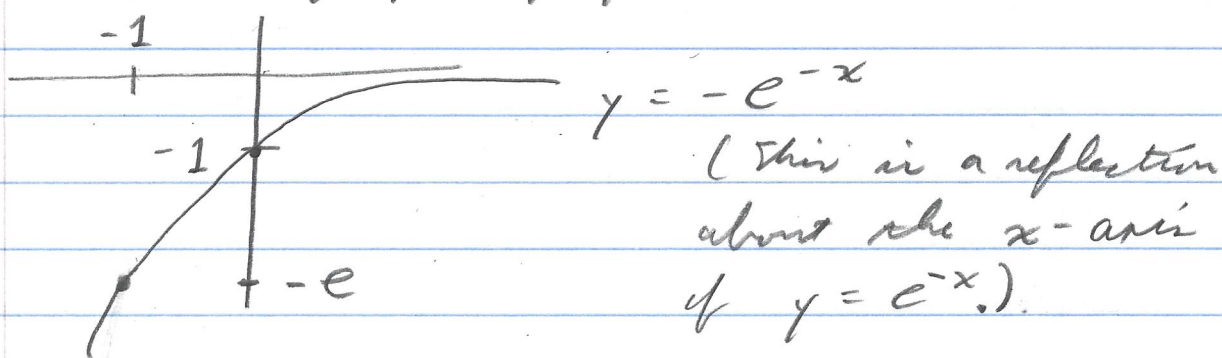
Finally, for $y = 1 - e^x$, shift $y = -e^x$ up by 1 to get:



Next, for $y = 1 - e^{-x}$ consider the graph of $y = e^{-x}$. Consider $y = e^x$ with x replaced by $-x$; then the graph of $y = e^{-x}$ is the reflection of $y = e^x$ about the y -axis:



Next, the graph of $y = -e^{-x}$ is



Finally, for $y = 1 - e^{-x}$ we shift the graph of $y = -e^{-x}$ up by 1 unit;

