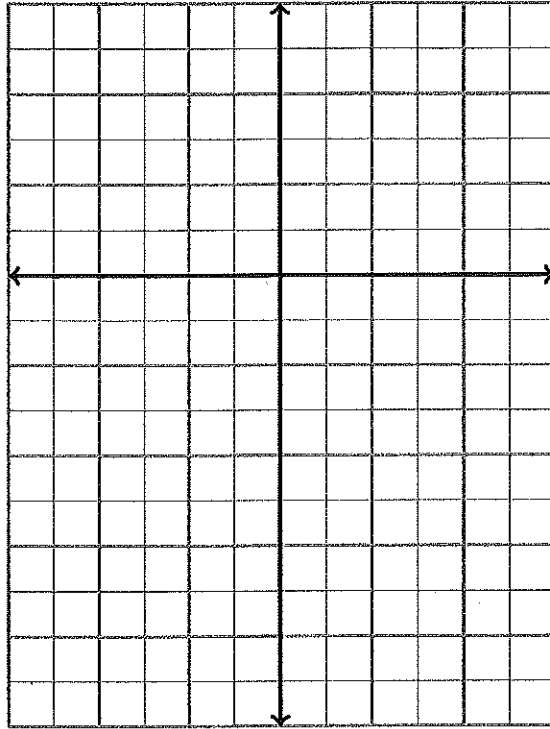


Euler's Method

February 8, 2014

Draw part of the slope field for the differential equation $\frac{dy}{dx} = y - x - 1$.



x	y	$\frac{dy}{dx}$
-2	0	
-2	1	
-2	-1	
-1	1	
-1	-1	
0	2	
0	0	
0	-2	
1	-1	

Extra Practice

(1) Perform the following approximations (by hand):

(a) If $\frac{dy}{dx} = x + 2y$ and $y(0) = 1$, approximate $y(2)$ using $\Delta x = 1/2$.

(b) If $\frac{dy}{dx} = xy$ and $y(1) = -1$, approximate $y(2)$ using $\Delta x = 1/2$.

(c) If $\frac{dy}{dx} = y/x$ and $y(-2) = 1$, approximate $y(-1)$ using $\Delta x = 1/3$.

(2) Which of the three problems above can you solve exactly? Do it and compare your approximations.