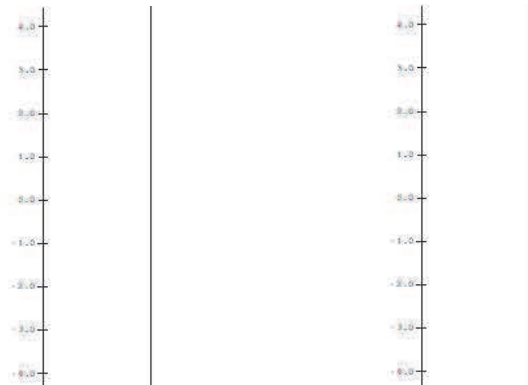


1. a. Complete the following tables for $m(x) = 2x$ and $s(x) = x + 1$

x	$m(x) = 2x$	$s(x) = x + 1$
2		
1		
0		
-1		
-2		

- b. Using the data from part a), on separate diagrams sketch mapping diagrams for $m(x) = 2x$ and $s(x) = x+1$



2. Let $q(x) = x^2$.
 a. Complete the following table for $q(x) = x^2$.

x	$q(x) = x^2$
2	
1	
0	
-1	
-2	

- b. Using the data from part a), sketch a mapping diagram for $q(x) = x^2$.

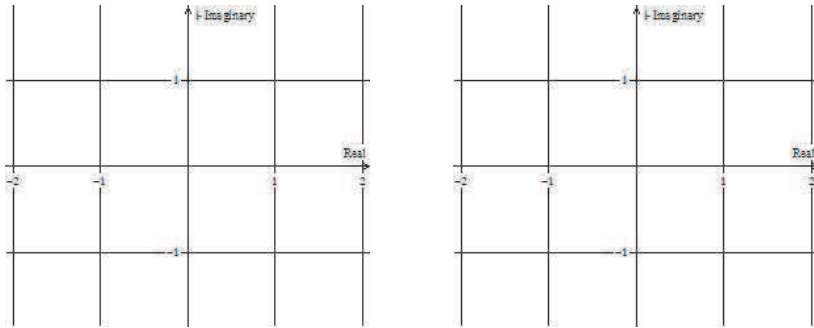


3. Let $f(z) = 2z + 1$.

a. Complete the following table for f :

$f(a+bi)$	-1	0	1
i	$f(-1 + i) =$	$f(i) =$	$f(1 + i) = 3 + 2i$
0	$f(-1) = -1$	$f(0) = 1$	$f(1) = 3$
$-i$	$f(-1 - i) =$	$f(-i) =$	$f(1 - i) =$

b. Sketch a mapping diagram for the table data below on the pair of complex planes.



4.

5. Let $f(x) = mx + b$ sketch mapping diagrams for the following:
 Use the same scale for the second axis.

a. $m = -2; b = 1: f(x) = -2x + 1$;

d. $m = 0; b = 1: f(x) = 0x + 1$



e. $m = 1; b = 1: f(x) = x + 1$

b. $m = 2; b = 1: f(x) = 2x + 1$



c. $m = 1/2; b = 1: f(x) = 1/2x + 1$



6.

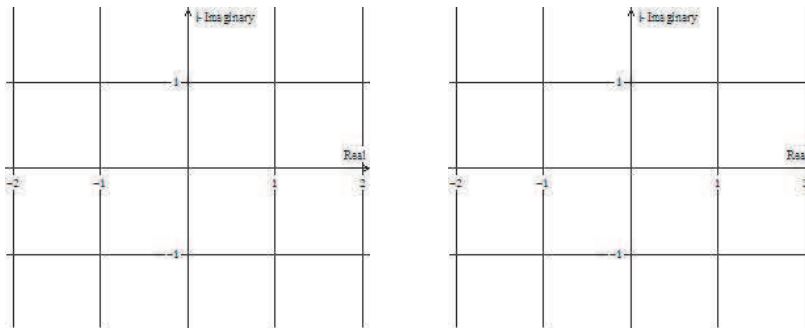
Let $f(z) = z^2$

a.

Complete the following table for f :

$f(a+bi)$	-1	0	1
i	$f(-1+i) =$	$f(i) =$	$f(1+i) = 2i$
0	$f(-1) = 1$	$f(0) = 0$	$f(1) = 1$
-i	$f(-1-i) =$	$f(-i) =$	$f(1-i) =$

b. Sketch a mapping diagram for the table data below on the pair of complex planes.



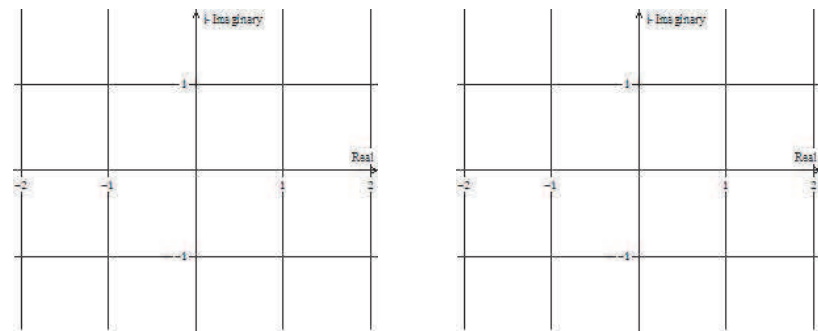
7. Let $f(z) = 1/z$.

a.

Complete the following table for f :

$f(a+bi)$	-1	0	1
i	$f(-1+i) =$	$f(i) = -i$	$f(1+i) = (1-i)/2$
0	$f(-1) = -1$	$f(0) = \infty$	$f(1) = 1$
-i	$f(-1-i) =$	$f(-i) = i$	$f(1-i) =$

b. Sketch a mapping diagram for the table data below on the pair of complex planes.



8. Let $f(z) = z^2$. Use a mapping diagram to visualize estimating the values of $f(1.1 + i)$ and $f(1 + 1.1i)$ with the differential. [Use $dz = 0.1$ and $dz = 0.1i$, near the value for $x = 1+i$ where $f(1+i) = 2i$, and $dz = f'(1+i) * dz$.]

