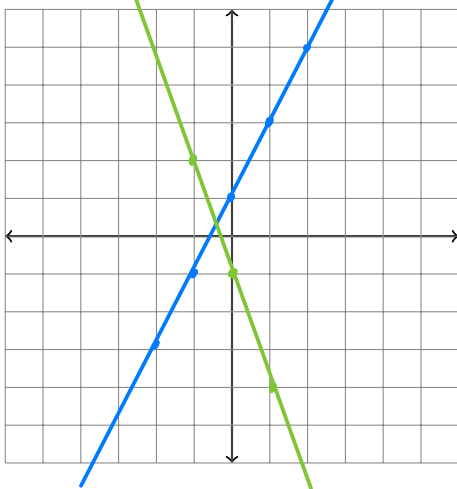


For each kind of function below, come up with a few functions of that kind and sketch their graphs. List some situations in “real life” which can be associated to such a graph. For example, a bouncing basketball might give rise to an absolute value shaped graph (height of the ball on the vertical axis and time on the horizontal axis).

Describe the domain and range your functions.

(a) Linear



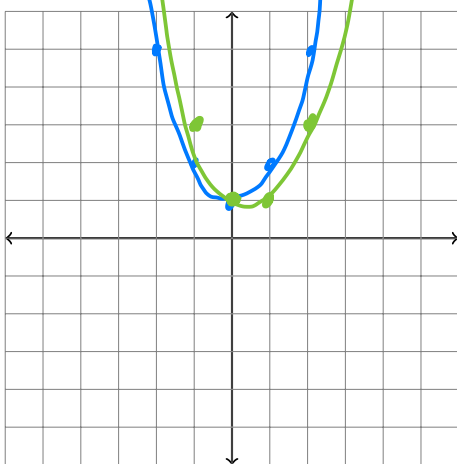
$$f(x) = 2x + 1$$

x	f(x)
-2	-3
-1	-1
0	1
1	3
2	5

$$f(x) = -3x - 1$$

x	f(x)
-1	2
0	-1
1	-4

(b) Quadratic



$$f(x) = x^2 + 1$$

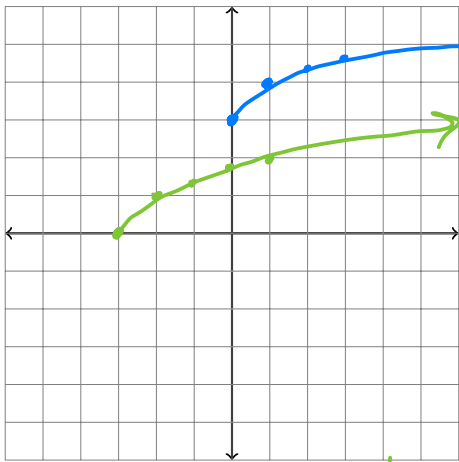
x	f(x)
-1	2
0	1
1	2
-2	5
2	5

$$f(x) = x^2 - x + 1$$

x	f(x)
-2	7
-1	3
0	1
1	1
2	3

(c) Square root

$$f(x) = \sqrt{x+3}$$

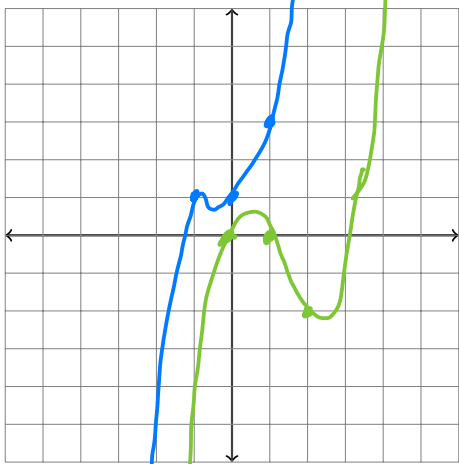


x	f(x)
-1	1.4
0	1.7
1	2
2	2.2
3	2.4

$$f'(x) = \sqrt{x+3}$$

x	f'(x)
-1	1.4
-3	0
0	1.7
-2	1
1	2

(d) Polynomial

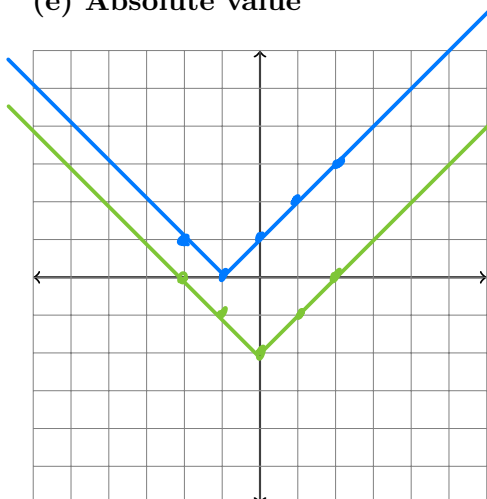


x	$x^3 + x + 1$
-2	-11
-1	1
0	1
1	3
2	11

green 2

x	$x^3 - 4x^2 + 3x$
-2	super negative
-1	-8
0	0
1	0
2	-2
4	12

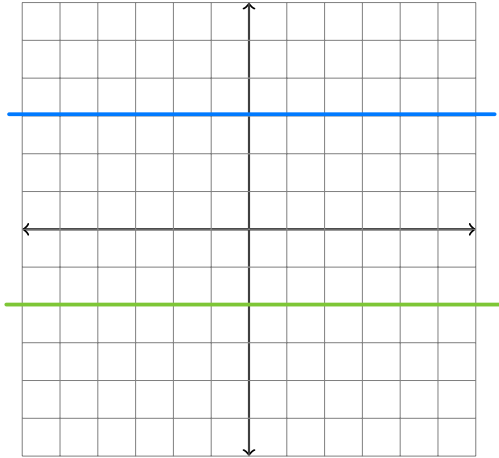
(e) Absolute value



x	$ x+1 $
-2	1
-1	0
0	1
1	2
2	3

x	$ x -2$
-2	0
-1	-1
0	-2
1	-1
2	0

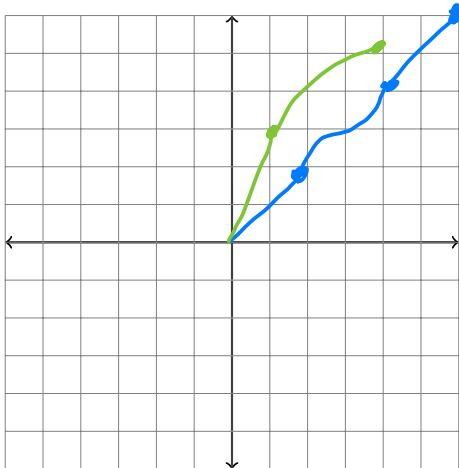
(f) Constant



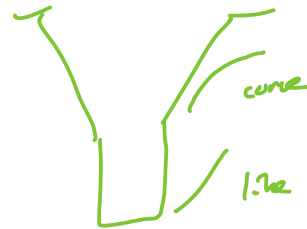
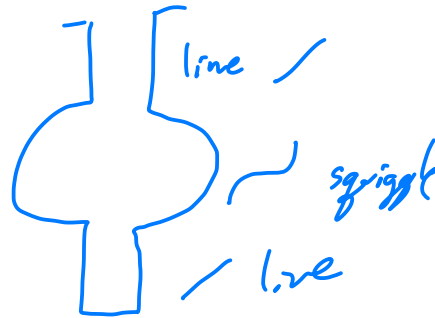
always = 3

always = -2

(g) Piecewise



cal. function



(h) constant

